Universities of the World



MILLENNIUM PROJECT

CHAPTER 1

Introduction

"About 85 institutions in the Western World established by 1520 still exist in recognizable forms, with similar functions and with unbroken histories, including the Catholic Church, the Parliaments of the Isle of Man, of Iceland, and of Great Britain, several Swiss cantons, and seventy universities. Kings that rule, feudal lords with vassals, and guilds with monopolies are all gone. These seventy universities, however, are still in the same locations with some of the same buildings, with professors and students doing much the same things, and with governance carried on in much the same ways."
Clark Kerr (2001a, p. 115



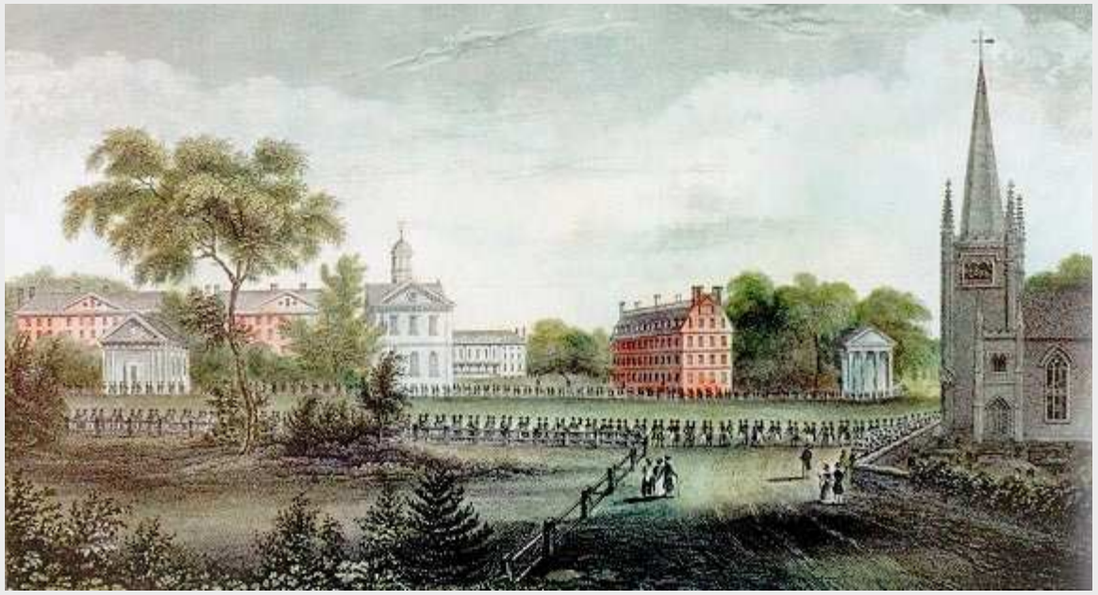
Introduction



This book attempts to tell a story, through words and through images, of the evolution of one of western civilization's most important institutions, the university, with particular attention on how it has evolved in the United States. Although influenced by the intellectual contributions of early civilizations such as the Greeks, Romans, and Islam, the university as we know it today was the creation of medieval Europe, first appearing in the late 12th century in the cities of Bologna and Paris and then evolving throughout Europe in various forms reflecting both local cultures and historical events. The student-driven culture of Bologna propagated throughout southern Europe and appears today in the large urban universities characterizing major European cities. The faculty-driven character of the University of Paris evolved in several forms including the residential colleges of Oxford and Cambridge, the discipline-based faculties of northern European universities, and the research universities appearing in 19th century Germany.



Medieval education in the University of Paris



Harvard College (1750)



The University of Michigan (1850)

As Europeans colonized and populated America, they brought with them these various forms of the university, first as the colonial colleges of the Northeast (e.g., Harvard, William and Mary, Yale), then state universities (e.g., U. North Carolina, U. Georgia, U. Virginia) more similar to those of southern Europe, and finally in the late 19th century adopting elements of the German research universities (e.g., U. Michigan, Cornell, and Johns Hopkins). Yet while the American university–rather universities, since there was great diversity–was clearly influenced by its European antecedents, it merged and reshaped these earlier models while adding features more responsive to the needs of a rapidly growing and expanding democratic nation, e.g. the emphasis on social and intellectual development of young students characterizing the British colleges, the utility of responding to particular social priorities through professional education and public service characterizing southern Europe, and the stress on scholarship and graduate education of the German universities. From this synthesis emerged a uniquely American form of higher education capable of addressing the needs of a rapidly growing and changing nation. The quality of American universities soared during the mid-20th century with the influx of talented international faculty and students fleeing conflict and persecution from the world wars.

In the late 20th century as universities in the United States began to dominate scholarship in key areas such as science and technology, both Europe and Asia launched major efforts to emulate aspects of American higher education. Through programs such as the Bologna Accord in the European Union, they began to stress strong public support of university research and graduate education, standardizing educational



novation in a knowledge-driven global economy, both developed and developing nations around the world have invested heavily in both in broadening access to higher education ("massification") and creating world-class research universities ("league table rankings"). Of particular note have been the massive investments in Asian universities, particularly in China, India, Japan, Korea, and Singapore.

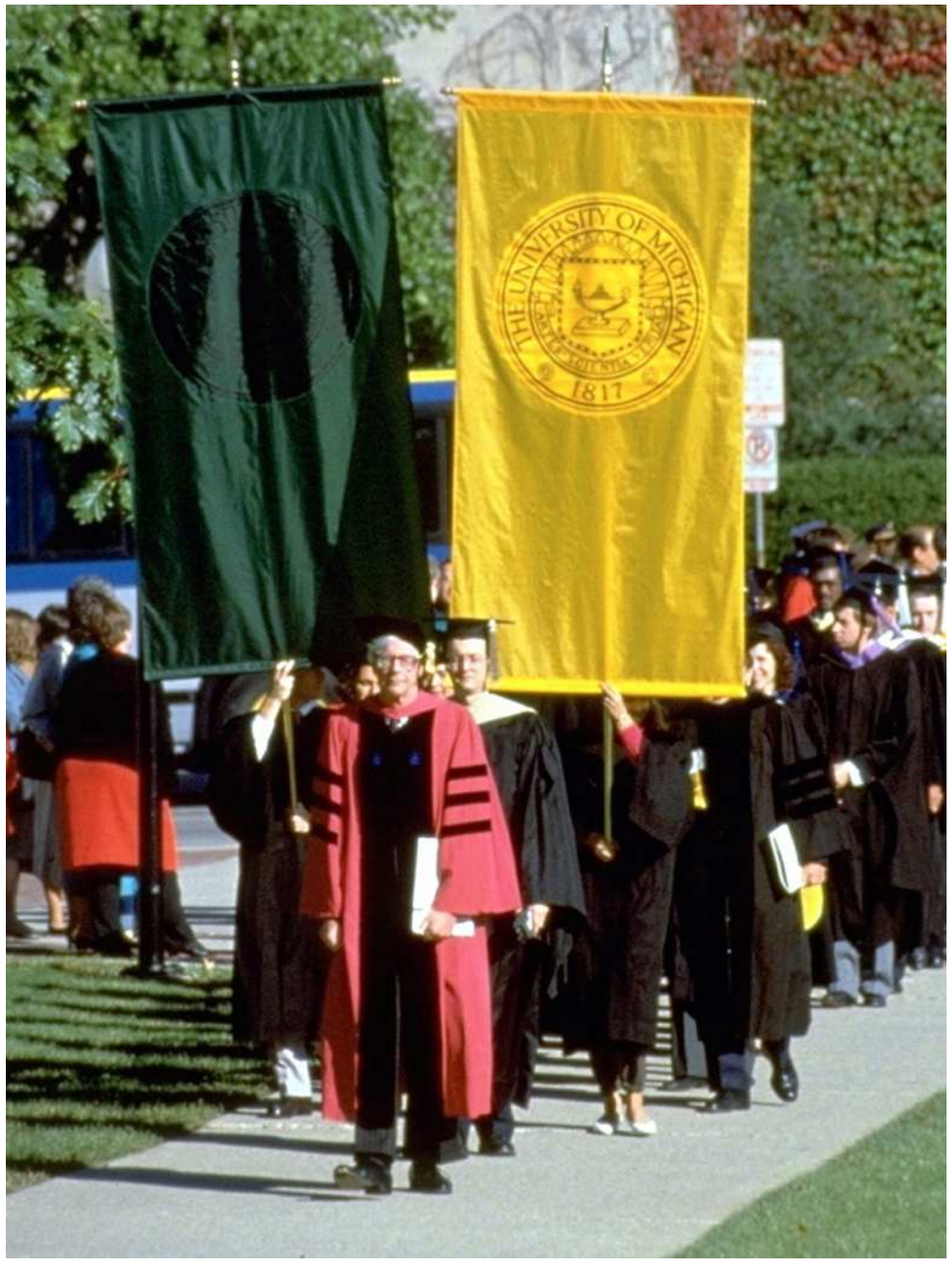
GALLERY 1.1 *The Evolution of the University*



The medieval university

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What Is a University?



At the outset we should acknowledge that terms such as "college" and "university" are used in widely different ways in higher education. A typical dictionary definition would go something like this: "A university is an institution of higher learning providing facilities for teaching and research and authorized to grant academic degrees; one made up of an undergraduate division which confers bachelor's degrees and a graduate division which comprises a graduate school and professional schools each of which may confer master's degrees and doctorates".

However the term "university" actually originated during the Middle Ages with the appearance of "unions" of students or faculty members who joined together to form communities of teachers or students. The Latin origin, *universitas*, meant "the totality" or "the whole" and was used by medieval jurists as a general term to designate communities or corporations such as guilds, trades, and brotherhoods. Eventually the term university was restricted to these unions of masters and scholars and given the more formal Latin title: *universitas magistororum et scholarium or universitas scholarium*. Interestingly enough, in the medieval universities of Oxford and Paris only the masters were full-fledged members of the university; in contrast, in the universities of Bologna and Padua, the university consisted only of the students with the teachers simply being hired through annual contracts.

Similarly, the term "college" was initially used to describe the quarters where students could live and be taught rather than an institution granting degrees. Such facilities later came to describe specific residential centers for learning such as the colleges of Oxford and Cambridge, although in this case the degrees were granted by the university itself, a practice also later adopted in some American universities like Yale and Harvard. Eventually the term "college" was extended to include degree-granting higher education institutions that focused on undergraduate education such as liberal arts colleges or community colleges.



Master and scholars at the medieval University of Bologna

Although the distinction between college (undergraduate education) and university (graduate and research intensive institutions) continues in Europe today, there has been a trend in the United States for many colleges to upgrade their names to "university" to enhance their prestige and marketing position, even through they remain predominantly undergraduate institutions with little research activity and few graduate programs. In fact, there are even corporate training programs that have adopted the university title, e.g., MacDonald University ("Hamburger U"). Yet perhaps President Charles Eliot of Harvard put the distinction between the two best in the late 18th century when he stated that "A college is a place to which a young man is sent; a university is a place to which he goes!"

From time to time, educators have attempted to define university in more intellectual terms. Although historically "university" referred to a union or corporate body of students or faculty, John Henry Newman stressed instead an alternative interpretation of the word: "The university is a place of teaching universal knowledge. This implies that its object is, on the one hand, intellectual, not moral; and on the other, that it is the diffusion and extension of knowledge rather than its advancement. If its object were scientific and philosophical discovery, I do not see why a university would have students; if religious training, I do not see how it can be the seat of literature and science." (Newman, 1911) Michigan's first president, Henry Tappan, was even



John Henry Newman

more specific in stressing this "universal knowledge" character of the university: "A university is literally a Cyclopedia where are collected books in every description that can aid learned investigation and philosophical experiment, and amply qualified professors and teachers to assist the student in his studies, by rules and directions gathered after long experience, and by lectures which treat of every subject with the freshness of thought not yet taking its final repose in authorship presents discoveries and views in advance of what has yet been given to the world…where in libraries, cabinets, apparatus, and professors, provision is make for carrying forward all scientific investigations; where study may be extended without limit, where the mind may be cultivated according of its wants, and where, in the lofty enthusiasm of growing knowledge and ripening scholarship, the bauble of an academic diploma is forgotten…" (Peckham, 1963).



Henry Philips Tappan

We tend to prefer a simpler synthesis of these definitions of the university:

A university is a community of masters and scholars (or in medieval terms, *universitas magistorium et scholariu*m), a school of universal learning (Newman) embracing every branch of knowledge and all possible means for making new investigations and thus advancing knowledge (Tappan, offering degree program across the full spectrum of academic and professional disciplines.

However here we would also acknowledge that this definition would exclude the vast majority of those institutions labeling themselves as "universities" throughout the world today.

More precisely we might turn to the Oxford English Dictionary definitions:

university - c.1300, "institution of higher learning," also "body of persons constituting a university," from Anglo-Fr. *université*, from M.L. *universitatem* (nom. *universitas*), in L.L. "corporation, society," from L., "the whole, aggregate," from *universus* "whole, entire" (see *universe*). In the academic sense, a shortening of *universitas magistrorum et scholarium* "community of masters and scholars;" superseded *studium* as the word for this.

college - c.1378, from O.Fr. *collége*, from L. collegium "community, society, guild," lit. "association of *collegae*" (see *colleague*). First meaning any corporate group, the sense of "academic institution" became principal in 19c. through Oxford and Cam-

bridge, where it had been used since 1379. *Collegiate* is 1514, from M.L. *collegiatus* "of or having to do with a college."

Public Images



What are the images of that come to mind when hearing the term "university"? Do we imagine academic activities such as students listening attentively to brilliant faculty in the lecture hall or studying in the library? Or perhaps scientists toiling away late in the evenings in the laboratory striving to understand the universe or scholars poring over ancient manuscripts, rediscovering our human heritage? Probably not.

The contemporary American university is many things to many people, but its images are rarely stimulated by its core missions of teaching and scholarship. Some see the university as a campus with ivy-covered buildings linked by tree-lined walkways of students. To others, particularly among the armchair television viewers, a university's image is dominated by its athletic activities, its football or basketball teams, since these probably capture the largest attention by the American public through the commercialization of college sports. Or perhaps they see the university as a site for cultural activities with its concert halls, museums, and libraries.

Some see the university as a place where students can safely grow into adults, tolerant of the occasionally frivolous play that characterizes the process of maturation. But university students can also represent the youthful conscience of a nation, with engagement in many of the critical issues of the day–social justice, global sustainability, world poverty and health. Similarly, many members of the public see universi-

Gallery 1.2 Public images of the University



Academic buildings on the University campus

Mythology and Saga



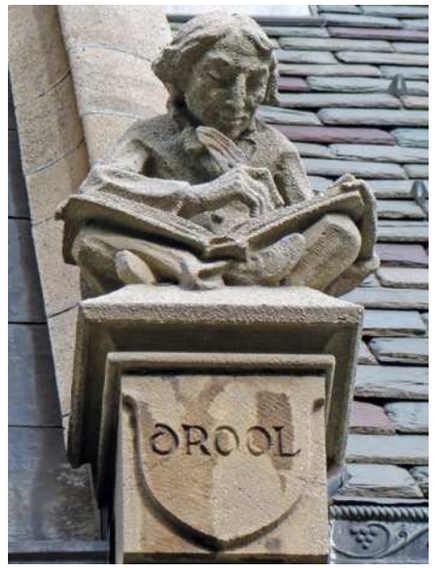


Universities are based on long-standing traditions and continuity, evolving over many generations (in some cases, even centuries) with very particular sets of values, traditions, and practices. Burton R. Clark, a noted sociologist and scholar of higher education, introduced the concept of organizational or institutional "saga" to refer to those long-standing characteristics that determine the distinctiveness of a college or university. Clark's view is that "An organizational legend (or saga), located between ideology and religion, partakes of an appealing logic on one hand and sentiments similar to the spiritual on the other. Universities develop over time such an intentionality about institutional life, a saga, which then results in unifying the institution and shaping its purpose." As Clark notes, "An institutional saga may be found in many forms, through mottoes, traditions, and ethos. It might consist of long-standing practices or unique roles played by an institution, or even in the images held in the minds (and hearts) of students, faculty, and alumni. Sagas can provide a sense of romance and even mystery that turn a cold organization into a beloved social institution, capturing the allegiance of its members and even defining the identity of its communities."



While all colleges and universities have a social purpose, for some these responsibilities and roles have actually shaped their evolution and determined their character. The appearance of a distinct institution saga involves many elements–visionary leadership, strong faculty and student cultures, unique programs, ideologies, and of course, the time to accumulate the events, achievements, legends, and mythology that characterize long-standing institutions.

For example, the saga of one of America's oldest universities, Yale, was shaped over the centuries by old-boy traditions such as secret societies (e.g., Skull and Bones), literature (from dime novel heroes such as Frank Merriwell and Dink Stover to Buckley's God and Man at Yale), and national leadership (William H. Taft, George H. Bush, Bill Clinton, George W. Bush, and, of course, Gerald R. Ford, although the latter was first and foremost a Michigan man). Harvard's saga is perhaps best captured by the response of a former Harvard president, who when asked what it takes to build a great institution like Harvard, responded simply: "300 years!" Notre Dame draws its saga from the legends of the gridiron, i.e., Knute Rockne, the Four Horsemen, and the subway alumni. Big Ten universities also have their symbols: fraternity and sorority life, campus protests, and gigantic football stadiums.



Again to quote Burton Clark, "The institutional saga is a historically based, somewhat embellished understanding of a unique organization development. Colleges are prone to a remembrance of things past and a symbolism of uniqueness. The more special the history or the more forceful the claim to a place in history, the more intensively cultivated are the ways of sharing memory and symbolizing the institution." A visit to the campuses of one of our distinguished private universities conveys just such an impression of history and tradition. The ancient ivy-covered buildings; the statues, plaques, and monuments attesting to important people and events of the past, all convey a sense that these institutions have evolved slowly over the centuries in careful and methodical ways to achieve their present forms and define their institutional saga.

In contrast, a visit to the campus of one of our great state universities conveys more of a sense of dynamism and impermanence. Most of the buildings look new, even hastily constructed to accommodate rapid growth. The icons of the public university tend to be their football stadiums or the smokestacks of their central power plants rather than their ivy covered buildings or monuments. A visit to the campus of these universities conveys little sense that the history of these insti-



Gallery 1.3 *Familiar University Sagas*



Harvard's symbol of 350 years of history: John Harvard?

SECTION 5

The Path Ahead



Yet to understand the true character of the university, particular as a social institution, one must adopt a broader historical perspective. For example, while campus architecture is an important element in creating an atmosphere for learning, it is interesting to note that early universities such as those in Bologna and Paris had no buildings for centuries; rather their faculty and students rented houses for lectures and held examinations and meetings in churches and convents. Indeed, even the magnificent architecture of the colleges of Oxford and Cambridge date from the Tudor years, centuries after these institutions were founded.

The university as we know it today is defined more by fundamental traditions and characteristics dating back to medieval times than to public perceptions such as ivy covered buildings, tree-lined campus walks, libraries and laboratories, or (thank heavens) looming football stadiums. A university is most fundamentally a learning community, where students and faculty–scholars and masters–come together in a common and shared life of learning. These institutions continue to embrace a curriculum of study, organized into subjects and tested through examination, leading to degrees quite similar to those of ancient times–baccalaureate, master, doctorate. The faculties continue to organized by discipline, albeit including beyond the elements of the medieval university (theology, law, medicine, and the arts) to embrace an ever expanding array of new academic and professional subjects. The fundamental mission of the university also remains much as it was in earlier times: to train the next generation of scholars while

maintaining and extending the traditions of learning and scholarship.

The structure of this book will initially follow a chronological pattern, tracing the development of the university first in Europe and then propagating to North America, where the further evolution of an American model of the university has stimulated a flow of influence both back to Europe and to the rest of the world. As our world becomes more tightly integrated through modern transportation and communications, this interaction among universities throughout the world has become extremely important in sharing not only our intellectual and cultural traditions but increasingly in sustaining our economic and security objectives in a knowledge-driven global society.

After this consideration of yesterday, the book turns its attention to the university of today by comparing a large number of universities both in the United States and throughout the world. Here an effort is made to use both images and stories to suggest possible institutional saga for many of these institutions in the sense of Burton Clark. There is also an effort to develop a taxonomy of contemporary universities from various perspectives, including forms (e.g., Oxbridge college systems, multiversities, university systems, urban universities, academic villages, technical institutes, and newly emerging forms) as well as characteristics such as campus architecture and communities, students, faculty, pedagogy, governance, and even some speculation about the role of campus myths and sagas).

The book concludes with some conjectures about the university of tomorrow, examining briefly some of the trailblazing institutions that appear to be breaking away from the traditional mold to establish new forms and new paradigms (e.g., cyberspace, global, lifelong learning). Below we have provided a diagram of both the historical evolution of the university throughout the world and the flow of the material in this book.

CHAPTER 2

In the Beginning

"In the history of the human race, the medieval university stands out as one of the great political institutions of all time. It drew Western Europe out of the Dark Ages and into the light. It invented cosmopolitan structures and norms that are still with us today."(Susan Lohmnann, 2002)

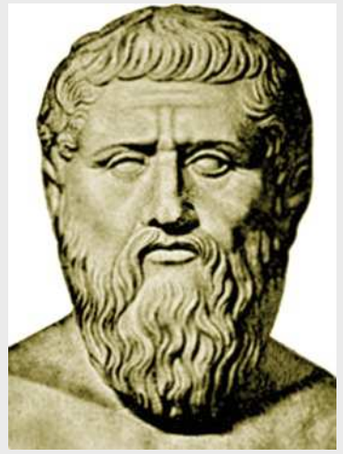


The Antecedents

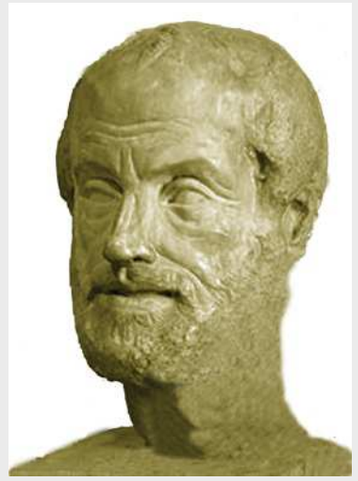


Plato and Aristotle (by Raphael)

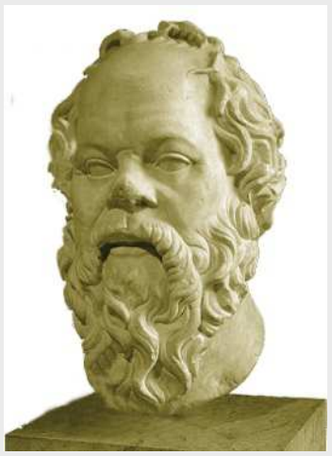
Both the Greeks and the Romans developed highly sophisticated learning cultures with rigorous teaching in disciplines such as law, rhetoric, and philosophy. Plato founded one of the earliest organized schools on a plot of land in the Grove of Academus. Aristotle was the first to create a comprehensive system of Western philosophy, encompassing morality and aesthetics, logic and science, politics and metaphysics. His views on the physical sciences profoundly shaped medieval scholarship, and their influence extended well into the Renaissance. Greek learning heavily influenced not only Roman civilization but eventually shaped much of philosophical and theological thinking in the Islamic, Christian, and Jewish traditions in the Middle Ages. Yet while outstanding in many ways, the instruction provided by Greek and Roman scholars did not result in permanent institutions of learning. Other early civilizations also had strong educational traditions, such as the India's Nalanda (700 AD). But once again, these did not result in the emergence of permanent



Plato



Aristotle



Socrates

institutions with the specific mission of bring together students and teachers for advanced learning.

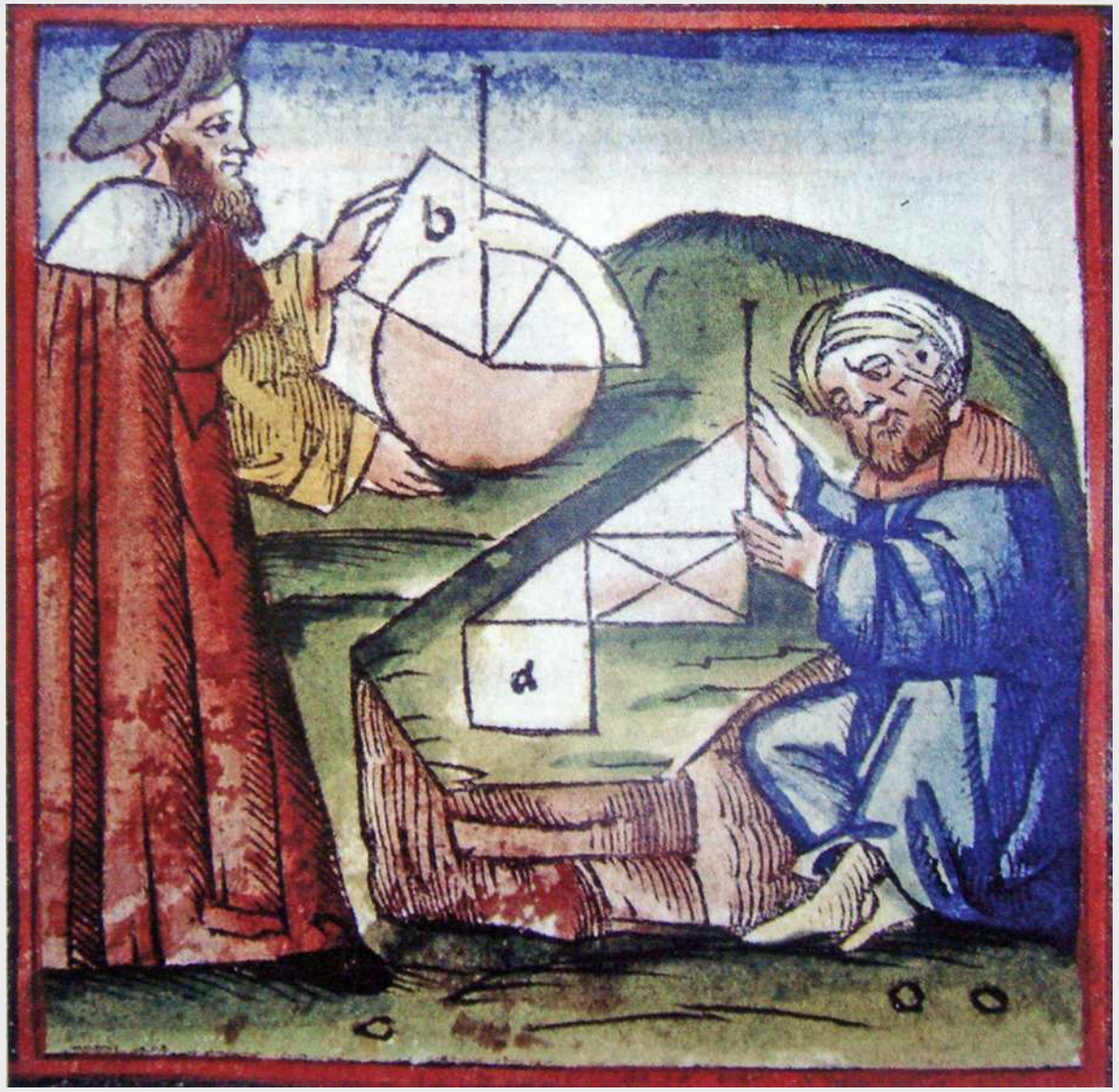
the new arithmetic, and those tests of Roman law which had burst the bonds of the cathedral and monastery schools and created the learned professions.

Of particular note in this regard were Al Karaouine founded in 859 in Fez, Morocco and Al-Azhar founded in Cairo, Egypt in 975. Although these were centers of advanced learning in fields such as Islamic law, Arabic language, mathematics, and astronomy, they were still not of the form we would recognize today as universities, which would not appear for another two centuries. Yet such Islamic centers of learning were instrumental in bringing the Dark Ages to an end as Arab scholars



reintroduced in 12th century Europe the work of Artistotle, Euclid, Ptolemy, and Roman law, augmented by Islamic contributions such as grammar, mathematics, and philosophy. This explosion of new knowledge expanded rapidly beyond the monasteries and cathedral schools and into the learned professions of law, medicine, and theology, stimulating the appearance of new learning communities and institutions.

Higher education bloomed from Damascus to Córdoba, and students endeavored to learn from the most famous teachers,



The role of Islam in science and mathematics

who granted diplomas. In contrast, diplomas in the medieval university were not granted by individual instructors but rather by the institution.

The First Universities (1100-1200)



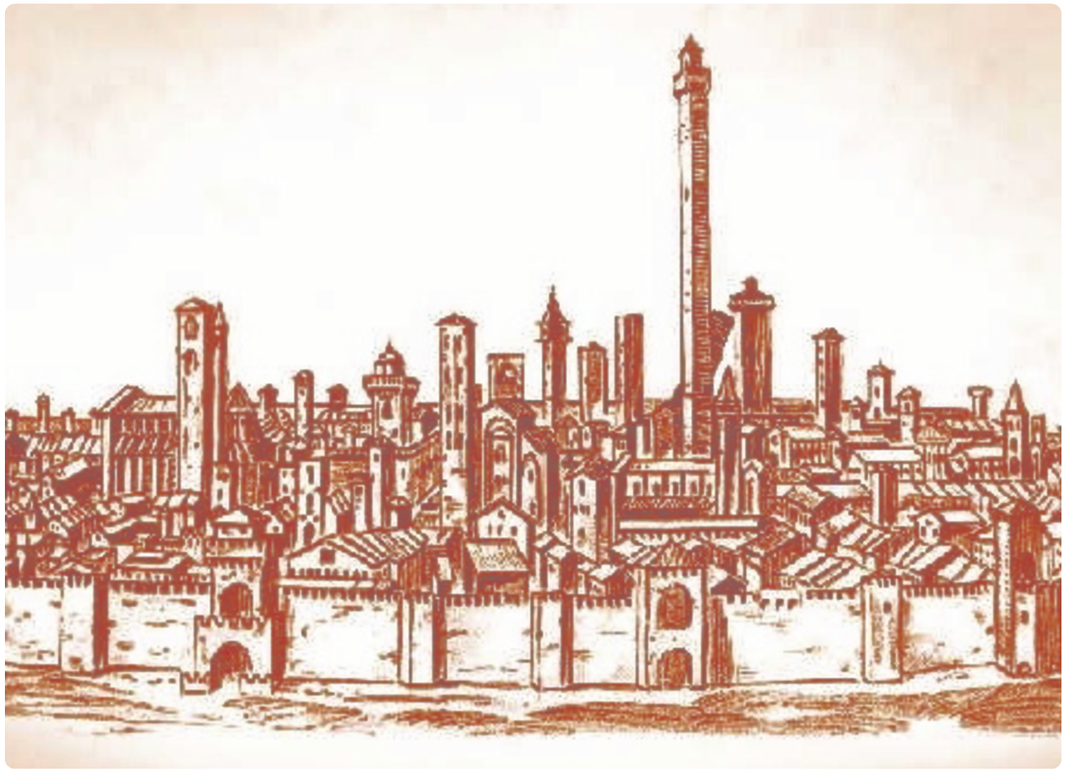
Most historians view the earliest true universities as emerging in the late 12th century in Bologna and Paris. The Universities of Bologna and Paris are generally regarded as the alma mater, the "mother of studies", of today's universities throughout the world. While the appearance of each institution as a true universitas magistrorum et scholarium, a community of masters and scholars, was stimulated by the re-introduction into Europe of the earlier achievements of Greek and Roman civilization by Arabic scholars, they followed somewhat different paths.

The University of Bologna

In Bologna, students from throughout Europe were attracted to study law with great teachers such as Irnerius. As hundreds of students gathered in Bologna to study law, they soon felt the need to unit for mutual protection and assistance. This "union" of students was similar to the medieval guilds already common in Italian cities. In fact, the word "university" was originally applied to any such group or corporation, whether carpenters or masons, and only later would be limited to guilds of masters and students, e.g., *universitas magestrorum et scholarium*.

If one regards the existence of a corporate body as the sole criterion, then Bologna is the oldest. In 1988 the University of Bologna celebrated its 900th anniversary. However there is little evidence for a 1088 founding date for Bologna. If one regards the association of teachers and students of various disci-

plines into a single corporate body, then Paris would be first in 1208. In Bologna between 1226 and 1234 a founding docu-



ment was forged that asserted it was established in 423. Paris thought that it had been founded by Charlemagne. All of these were fictions. ((Jacques Verger, in Ruegg, European U History I)

Although the student "university" was organized initially as a means of protection against the townspeople, it rapidly provided the students with additional powers. In fact,

to the student commune, which assumed total control of the

ters inside the university was authorized by an oath taken by

rector.

Eventually this threat posed by such student power would drive the faculty to form their own guilds, setting qualifications for admission to counter the power of the students. The faculty went further and controlled the certification of student attainment by issuing a license, the licentia docendi, as the ear-



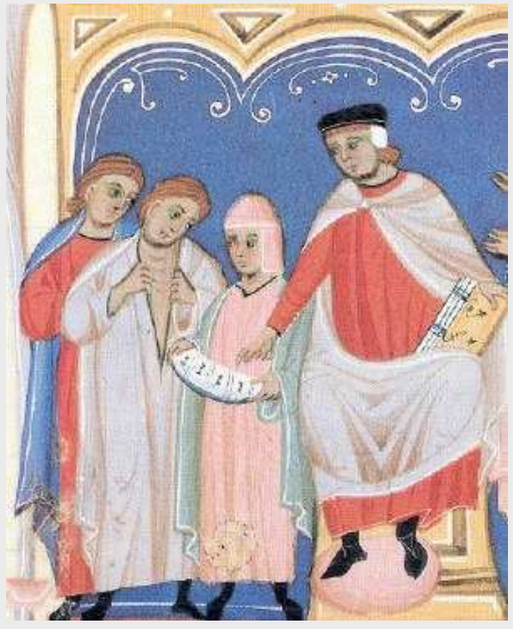
Master and scholars in the early University of Bologna

liest form of an academic degree, which would enable the student to become a teacher.

The courses of study and degrees were designed to prepare scholars as university teachers. The bachelor's degree certified nothing beyond the capacity to serve as an apprentice in the art of teaching. The master's (magister) and doctor's degree testified to the capacity and formal right to deliver academic lectures in the liberal arts and eventually to teach in the professions such as medicine and law. Although the University of Bologna was preeminently a school of civil law, it would eventually offer study in other areas such as medicine and theology (although the medieval university not did develop faculties in other professions such as the mechanic arts because these were controlled by guilds).

Bologna had many of the characteristics of today's universities in academic subjects and organization. Yet it would exist as only as a social and intellectual institution without its own buildings or campus in which space was rented for teaching, similar to most other medieval universities, for the first several centuries of its history. The University of Bologna model of a student-driven institution propagated rapidly throughout Italy, Spain, and southern France, giving these institutions a strong character of student influence that remains even today in higher education in southern Europe.

At both Bologna and Paris, a great teacher served as the magnet to attract gatherings of students. Irnerius was the teacher who gave Bologna its reputation for the recovery and revival of Roman law leading to the beginnings of European law that was written, systematic, comprehensive, and rational (Verger, Ruegg). Students came to Paris to study under the theologian Peter Abelard, who applied the scholastic method to examine theological controversies such as whether the bread and wine



Irnerius of Bologna



Abelard of Paris

consumed in communion was actually transformed into the body and blood of Christ or only in spirit–controversial speculations that, if interpreted as heresy by the Church, could result in burning at the stake! (Lohmann)



sity of Paris settled the matter by selecting its year of founding as 1200. By 1231 the faculty "university" was able to obtain a the papal privilege, the *bull Parens scientiarum*, "issued after a two years cessation of lectures growing out of a riot in which a band of students, having found wine that was good and sweet to drink, beat up the tavern keep and his friends until they in turn suffered". (Haskins)

Beyond this formal recognition, later sought and obtained from the Holy Roman Emperor by the University of Bologna and other early medieval universities, the University of Paris pioneered yet another important feature of the university, the "college". Although its early activities were conducted near Notre Dame on the Ile de la Cite, it eventually expanded across to the Left Bank (thereby giving the region the name "Latin Quarter" because of the use of the Latin language in all instruction conducted by medieval universities). To provide living quarters or hospice for students, facilities or "colleges" were acquired for student living and learning. These soon became an established feature of academic life, with faculty assuming responsibility for securing room and board for poor

scholars. These buildings or colleges would soon acquire their



ton College, named after the Bishop of Rochester.

After the arrest and execution of a few students in the early 13th century, upon orders of the mayor and the king, a group of masters and students fled Oxford to establish themselves as a new university in Cambridge, usually dated at 1209. Again a college system evolved similar to that at Oxford.

The college system of was most strongly adopted by Oxford and Cambridge, two of the earliest offshoots of the University of Paris, where it came to be the most characteristic feature of university life, assuming responsibility for most teaching (within the tutorial system) as well as social life. The early Oxbridge colleges such as Balliol, Merton, and Peterhouse soon acquired not only independent endowments but the authority for academic activities through their tutors, fellows, and masters. They organized their own endowment, elected their own heads, and were governed by their own fellows through charters and statutes. In fact throughout much of their history, the primary responsibility of the English universities was restricted to examining students and awarding degrees. It was

GALLERY 2.5 Cambridge University



Cambridge University (17th Century)

1 of 12

only in the 20th century that the Oxbridge universities themselves would assume major responsibility for graduate education and research, while the colleges continued to focus on undergraduate education.

Several more definitions are useful here, taken from Verger:

An abstract word in classical Latin (meaning "the totality" or "the whole"), universitas had become for medieval jurists the general term used to designate all kinds of community or corporation (a guild, a trade, a brotherhood, and so on). One had therefore to specify the object to which one was referring so that one would talk of "the university of students" or "the university of masters and scholars" (*universitas scholarium or universitas magistorium et scholarium*). The medieval universities were therefore first of all organized communities of individuals responsible in certain towns for higher education. (Jacques Verger, Ch 2 Patterns, European University History I)

A *studium generale* was an institution of higher education founded on or confirmed in its status by an authority of a universal nature, such as a pope or emperor, whose members enjoyed a certain number of rights, likewise universal in their application, which transcended all local divisions.

Another institution which goes back to 12th C Paris is the *college*. Orginally merely an endowed hospice or all of residence, the college early became an established unit of academic life. The objective of the earliest college founders was simply to secure board and lodge for poor scholars who could not pay for it themselves. In the course of time the colleges became normal centers of life and teaching, absorbing into themselves much of the activity of the university. The college and buildings and endowments, if the university had none. The first university "colleges" appeared in Paris, at the end of the 12th century. These were nothing more than modest pious foundations, serving to provide shelter for a handful of students, often in the midst of other poor clerics. The first genuine col-

leges were established in Paris, and then in England, in the second half of the 13th century. In Paris mention should be made of the colleges of the Sorbonne (1257), Harcourt (1280). In Oxford, Merton (1263), Balliol (1261), and University College (1280), and at Cambridge, Peterhouse (1284).

Whoever their founders were, whether princes, officers, ecclesiastical dignitaries, the colleges of the 14th and 15th centuries were regarded less as simple lodging-houses for "poor scholars" and more as privileged institutions serving to guarantee their members, at the price of a degree of discipline, the best conditions for work and student, in other words, to constitute a student elite. Such colleges were therefore increasingly in a position to compete with the faculties, whose role tended to be reduced to the conferment of degrees. The students began to group themselves into *nations* according to their places of origin.

Besides its old meaning of a discipline or field of study, from the mid-13th century onwards *faculties* meant a body teaching a discipline, i.e., arts, law, medicine, or theology. Teachers and students were members of these faculties and consequently also of the *studium generale*.

SECTION 3

The Medieval University (1200-1400)



Medieval universities embraced the hierarchical notion of knowledge inherited from antiquity. Both Plato and Aristotle envisioned the basis of education as a grounding in elementary grammar, literature, music, and arithmetic. Such subjects were regarded as the "liberal arts" in the sense that they prepared free men for roles in law and public life, in contrast to the "servile" arts of the trades. Drawn from antiquity, the medieval curriculum was heavily based on Greek works, including the preparatory arts of grammar, rhetoric, and logic–known as the trivium– and the more quantitative subjects of arithmetic, geometry, music, and astronomy–known as the quadrivium. The pedagogy of the medieval university was based upon scholasticism, a form of theology and philosophy stimulated by the re-emergence of Greek philosophy following the Dark Ages and aimed at reconciling the Christian theology of the Church with the Greek philosophy of Aristotle, and most suited for preparing an elite with the knowledge and skill to serve society, whether in an ecclesiastical or a secular role.

Trivium and Quadrivium

"Medieval universities gave institutional form to a hierarchical notion of knowledge which they inherited from antiquity. Both Plato and Aristotle described a basic education which comprised a grounding in elementary grammar, literature, music, and arithmetic. That view of the role of the "liberal arts", as they were called, arts for the free, as opposed to the

servile, man passed into Roman education where they had the directly practical end of preparing for a training in law and public life."

"From antiquity they were divided between the three verbal disciplines of grammar, rhetoric, and logic (the *trivium* or threefold way to wisdom), and the four mathematical disciplines, of arithmetic, geometry, astronomy, and music (the *quadrivium* or fourfold way)." (Gordon Leff, European University History I)

The Liberal and Servile Arts

"The explanation for the exclusion of the technological disciplines within the professions taught by the medieval university seems to lie in the medieval classification of the sciences, which made distinctions between the *artes liberal*s and the *artes mechanicae*. More broadly, every science was divided into a theoretical and a practical part and that medicine which has to do with human beings should be ranked as the highest of the natural sciences and above the *artes liberals*. But this was not accepted."

"Instead there was a sense that the mechanical sciences, to which medicine belonged, had a practical use and hence should be regarded not as free arts but as servile arts, as artes serviles. Then why was medicine the only artes servile taught in the university? But perhaps we should not take the scholastic classification of the different kinds of knowledge so seriously."

"A more pragmatic explanation notes that in *artes mechanicae* admission and training were dominated by guilds or corporate bodies on the basis of status; admission was often limited by connections of kinship. They were moreover oriented immediately towards the formation of practical occupational skills. In these fields medieval societies did not provide generally accessible schools from which universities or university faculties could have grown. The preoccupation with the theoretical principles of the divine order of the universe and with the scholarly study of human beings, freed from practical interests, was directly derived from Greek philosophy." (Walter Ruegg, Themes, European University History I)

Ancient degrees

"The courses of study, examinations, and degrees were not oriented to the provision of any training for occupations other than those of university teachers. The bachelor's degree as the culmination of the first stage of academic training certified nothing beyond the capacity and the right to serve as an apprentice in the art of teaching in a particular field under the supervision of a magister. The master's and doctor's degrees testified to the capacity, as implied by the *licentia ubique docendi*, the formal right to deliver academic lectures."

"The fact that there was value to the degree cannot belie the fact of the social value of the pure striving for knowledge. Otherwise the university as a corporate body serving only material interests and freedoms would have shared the fate of other medieval institutions and long since disappeared."

I"f one disregards the considerable distances and numerous obstacles and hardships involved in journeys in the Middle Ages, it was in fact relatively easy between the 13th and 15th centuries to attend university and become a student. There were really non particular requirements for admission and attendance. The old universities consisted of quite fluid communities of individuals of the most varied hue. The association of students formed around a teacher or master."

"In Europe the concepts of "university", "faculty", "doctor", "master", and "student" have been in use for virtually 800 years. Despite this long usage the realities behind the worlds have only ostensibly remained the same. Modern notions are of little help." (Walter Ruegg, Themes, European University History I)

Scholasticism

"European scholasticism was both a method of learning taught by the academics (scholastics, school people, or schoolmen) of medieval universities circa 1100–1500, and a program of employing that method in articulating and defending orthodoxy in an increasingly pluralistic context." (Wikipedia)

"Not so much a philosophy or a theology as a method of learning, scholasticism placed a strong emphasis on dialectical reasoning to extend knowledge by inference, and to resolve contradictions. Scholastic thought is also known for rigorous conceptual analysis and the careful drawing of distinctions. In the classroom and in writing, it often takes the form of explicit disputation: a topic is drawn from the tradition is broached in the form of a question, opponents' responses are given, a counterproposal is argued and opponent's arguments rebutted. Because of its emphasis on rigorous dialectical method, scholasticism was eventually applied to many other fields of study."



The master reads a lesson from a manuscript.

"As a program, scholasticism was part of an attempt at harmonization on the part of medieval Christians thinkers: to harmonize the various "authorities" of their own tradition, and to reconcile Christian theology with classical and late antique philosophy, especially that of Aristotle."

"The main figures of scholasticism were teachers such as Peter Abelard and Thomas Aquinas. Thomas Aquinas's masterwork, *Summa Theologica*, is often seen as the highest fruit of Scholasticism."



The lecturer in cathedra

The function of teacher is much older than the medieval university, as the characteristics of faculty borrowed from classical Latin such as magister, doctor, and professor suggest. University studies took six years for a Bachelor's degree and up to twelve additional years for a master's degree and doctorate. The first six years were organized by the faculty of arts, where the seven liberal arts (the trivium and quadrivium) were taught: arithmetic, geometry, astronomy, music theory, grammar, logic, and rhetoric. The primary emphasis was on memorization, logic, and debate structured according to the scholasticism rules of Aristotelian syllogistics.

Once a Bachelor of Arts degree had been conferred, the student could leave the university or pursue further studies, in one of the three other faculties – law, medicine, or theology – in which to pursue the master's degree and doctorate degree.

Theology was the most prestigious area of study, and the most difficult. The attainment of the master of arts degree enabled scholars to lecture on all books used in bachelor of arts, while the doctorate was designed for the professions of theology, medicine, and law.

"Images of early universities show the lecturer in a cathedra, a chair (hence the name for a professorial chair). He lectures from a book to several adult students. The practice of the medieval lecture was to read aloud. The book was not a printed one, since the printing past had not been invented yet. On the whole, medieval training focused on memory, remaining mostly oral with no writing. The lecture, like the sermon, had a liturgical cast and aura. One must be authorized to perform the right and do it in an authorized manner.

"The disputation was an oral event. It aimed not at the production of new knowledge but rather at the rehearsal of established doctrines. What was produced, oral argument, was consumed on the premises.



The scholar (student) then defense his proposal in a disputation.



The classroom of a medieval university

The disputation did not accumulate and circulate truth. It rather disaccumulated or dismantled possible or imagined error.

"In the course of studies one passed through various academic statuses. First one was a mere scholar, then a bachelor and then, for those who went on, eventually a master or doctor. The latter two, after disputing for the degree, might remain at the university and try to become fit for the faculty by engaging in disputation for a place in faculty." (Clark, 2005)

Medieval faculty members typically supported themselves through fees from lectures, although by the Renaissance some enjoyed endowed or salaried positions. They were divided



The dress of today's scholars reflects their medieval origin.

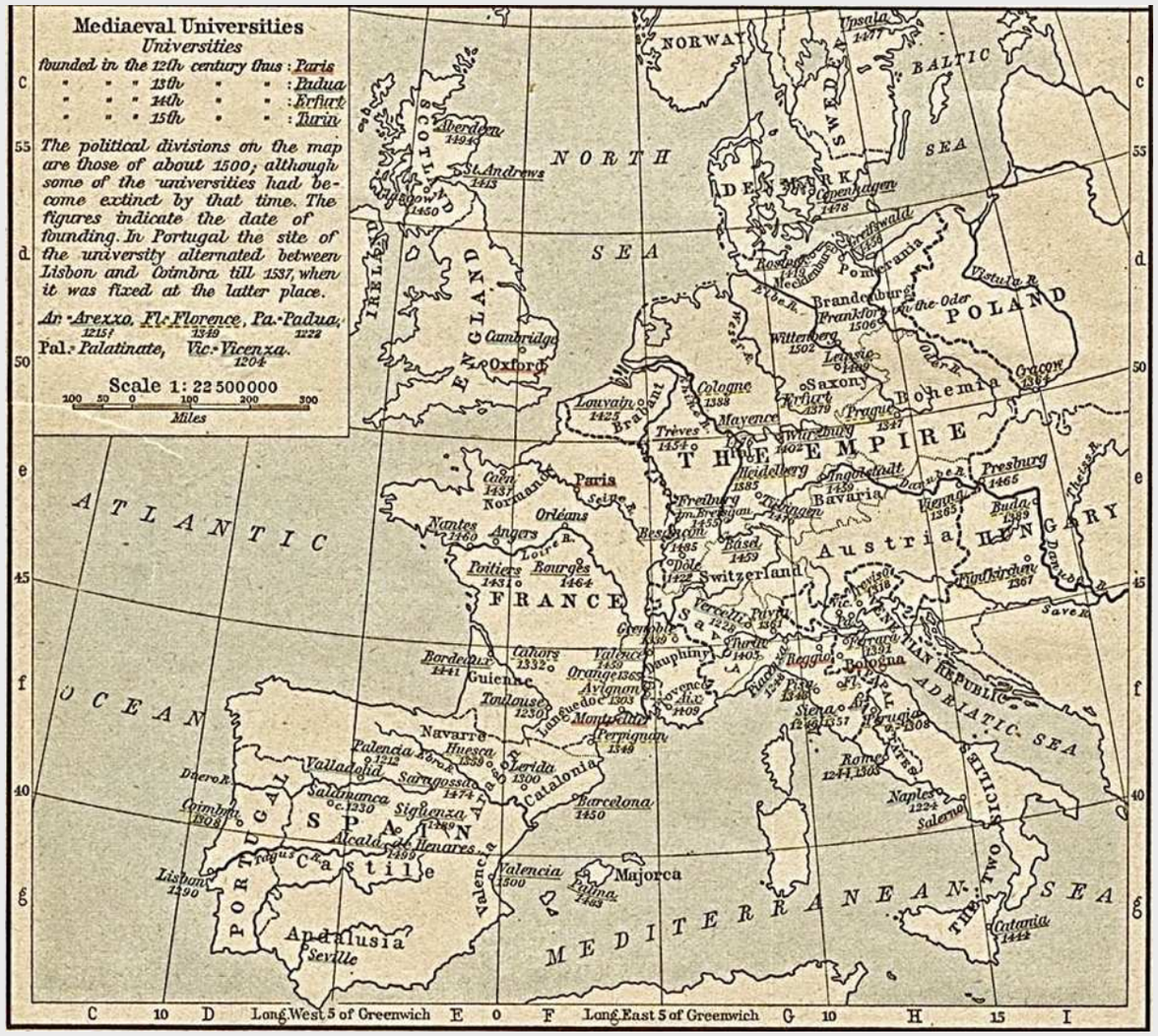
into faculties for specific disciplines or fields of study, which in comprehensive medieval universities were four in number: a lower faculty in the arts (teaching the preparatory liberal arts) and three higher faculties of theology, law, and medicine.

The medieval university was known as a *Studium Generale*, which was registered as an institution of international excellence by the Holy Roman Empire. Most of the early *Studia Generalia* were found in Italy, France, England, and Spain, and these were considered the most prestigious places of learning in Europe. The solidarity of the medieval system lay in the supposed uniformity of the lectures or the texts behind them. Ideally a master or doctor cast in Oxford or Bologna should be able to perform in the scholastic theater as well as one cast

in Paris. Furthermore since Latin was the common language used in all medieval universities, it was relatively easy for both students and teachers to transfer among universities.

SECTION 4

Further Development of the European University



The expansion of the medieval university through Europe.

Universities began to proliferate throughout Europe as groups of faculty or students left their original universities and sought to promote their own ideals. Bologna served as the model for the development of the medieval university in Italy, Spain, Portugal, and the rest of southern Europe. North of the Alps, the University of Paris proved most influential. Within a short time similar universities were established in Toulouse (1220) and Montpellier (1229).

"The defection of a group of masters and students leaving their university of origin, generally after a dispute with the local authorities, and establishing themselves in a new town was a common occurance. In France the ancient schools of Orleans and Angers benefited from the flight of masters and students from Paris in 1229-31 (again seeking reparation for the death of a number of students from royal troops). The University of Padua was founded in Venice in 1222 when a number of students and professors left the University of Bologna because of concerns about academic freedom. Soon, however, student behavior persuaded the Venetian Republic that the university would better be located in Padua, far from the city of Venice itself." (Jacques Verger, in Ruegg, European U History I)

By 1500 France had 16 provincial universities, on the whole rather small, and one monstrous university in Paris with 68 colleges. England and the German states pursued alternate ends of the Parisian-French model. By 1500 England had only

two universities, Oxford and Cambridge, which between

versities (and many more than that by 1800). With the sole ex

Medieval Universities in Europe (use map here)

"By the end of the Middle Ages there were 66 universities in 1500, with the majority located in southern Europe and the primary discipline being law. These adopted the Bologna model. With the exception Paris and Oxford, southern Europe was the favored terrain for universities because of its higher levels of urbanization and its traditions of written law. The new universities in the northern half of Europe generally took the main features of their organization from the Parisian model. They tended to have all four "classical" faculties. They were "masters" universities." (Jacques Verger, Ch 2 Patterns, European University History).



Role of Latin in enabling *Universitas Scholarium*

"Until the 17th century all universities taught in Latin and curricula and degrees were the same. A student could therefore begin his course at one university, usually the nearest, and continue it at another, or at several others. In the 12th and 13th centuries there were not many universities. However by the 15th century nearly every territory in Europe had its own



center of higher education, and at all of them the teaching methods, the subjects taught, and the degrees awarded were much the same."

"12th century intellectuals did not feel bound to any particular school or curriculum; they freely chose their discipline and teacher. Lonely students in a foreign, sometimes hostile city formed associations whose members spoke the same language or shared the same tastes. As a group they could look



after themselves better and cope more easily with the difficulties of a long stay abroad. Nevertheless, the subjects of the Holy Roman Empire were the greatest academic pilgrims of the Middle Ages and modern times."

"Preference for a regional university or for the nearest university became general at the end of the 14th century, when every state and political or ecclesiastical unit tried to found a studium so that its citizens should study there instead of





abroad. In this way it kept their intellectual and ideological training under observation and prevented the flight of capital abroad, detrimental to local traders and craftsmen." (Hilde de Ridder-Symoens, Ch 9 Mobility, European University History 1)

Characteristics of European Medieval Universities

European universities varied greatly in antiquity, permanence, and quality of teaching and research, but there were some regularities. A s*tudium generale* arose spontaneously or was founded by papal or imperial charter and had the right to grant its alumni permission to teach at any university (*licentia ubique docendi*). The term universitas was of much wider scope, since in law it meant any type of corporation or community.

By the end of the Middle Ages university privileges were less absolute. Civil authorities had begun to take the place of the



church in guaranteeing university franchises. The personal privileges of students and masters, although not abolished, were subject to growing supervision. Such influences, together with factors such as the number of students, the founder's intention, or local pragmatic arrangements, contribute dot the shaping of the organization and structure of the studium generale. University communities had subdivisions such as faculties, nations, and colleges, with similar corporative rights and organizations. The nature of these internal corporations determined the character of the whole university. A(Aleksander Gieysztor, Ch 4 Management and Resources, European University History I)

By the early 15th century nearly every part of Europe had its own universities, and at all of them the teaching methods, subjects taught, and degrees awarded were dictated by scholasticism and essentially the same. As Ridder-Symoens notes, "The subjects of the Holy Roman Empire were the greatest academic pilgrims of the Middle Ages and modern times!" The technology of the printing press, although resisted at first by collectors, rapidly spread knowledge and help to drive great intellectual movements such as humanism and the Reformation. (E History I)

"The influence of the medieval university on the institution we know today is immense. First the very name university, as an association of masters and scholars leading the common life of learning. Next the notion of a curriculum of study, definitely laid down as regards time and subjects, tested by an examination and leading to a degree, as well as many of these–bachelor, master, doctor. Then the faculties, four or more, with their deans and higher officers such as chancellors and rectors, not to mention the college, wherever the residential college still survives. The essentials of university organization are clear and unmistakable ,and they have been handed down

in unbroken continuity. They have lasted more than 700 years–what form of government has lasted so long?"

"The Middle Ages are very far away. But in his relations to life and learning the mediaeval student resembled his modern successor far more than is often supposed. If his environment was different, his problems were much the same; if his morals were perhaps worse, his ambition was as active, his rivalries as intense, his desire for learning quite as keen. And for him as for us, intellectual achievement meant membership in that city of letters not made with hands, "the ancient and university company of scholars."

"Universities are criticized for many things. But no substitute has been found for the university in its main business, the training of scholars and the maintenance of the tradition of learning and investigation. The glory of the medieval university was "the consecration of learning", and the glory and the vision have not perished from the earth. The medieval university was the school of the modern spirit."(Haskins, The Rise of Universities, Cornell University Press, 1957)

Renaissance and Refomation



"In Italy the night that intervened between the intellectual daylight of antiquity and the dawn of the Renaissance was but one of those luminous nights in which the last light of the evening persisted until the first rays of the morning sun." (Hastings, Oxford)

While the medieval university provided the template for higher education first in Europe, then in North America, and eventually throughout the world, it was largely a bystander to the great intellectual movements of the 15th and 16th century: the Renaissance and the Reformation. The medieval universities held fast to the traditions of scholasticism, both in philosophy and pedagogy, even as humanism, the intellectual movement of the Renaissance that placed importance on the study of human nature and worldly topics rather than religious ones, emerged in 15th century and was embraced by newly emerging universities in northern Europe. More fundamentally while humanists accepted that God created the universe, they believed that it was through humans that civilization evolved. Renaissance humanists believed that the liberal arts (art, music, grammar, rhetoric, oratory, history, poetry, using classical texts, and the studies of all of the above) should be practiced by all levels of "richness". They stressed the importance of self, human worth and individual dignity. Humanism

Humanism

Humanism is a phenomenon of the transition from the Middle Ages to modern times, which most historians place about 1500. The Italian humanists as early as the 14th century saw their own times as marking a sharp break from the Middle Ages, a golden age in which poetry and oratory, painting and sculpture, architecture and music emerged once more as Platonic philosophy was rediscovered, astronomy was brought to perfection, and the cutting tools were found for type to print books.

Humanism by the 16th century moved from being an Italian phenomenon into being a European movement. The conception of what was regarded as medieval underwent considerable changes; scholasticism, the Inquisition, superstition, the division of society into lords and serfs, the ecclesiastical forms of authority, the conditions of life of a largely rural population, were decisively changed through the "revolutions" of the 17th and 18th centuries: the "scientific revolution" from Copernicus to Newton, the "industrial revolution" with the introduction of new sources of energy such as the steam engine, and the political revolutions of the United states in 1776 and France in 1789.

It was also the age of eloquence, since dialogue was intended to persuade the reader or the listener. The humanist dialogue made no use of the technical language or mode of argument characteristic of a discipline in a scholastic disputation. With the openness of a learned conversation the speaker's known experiences, knowledge, and beliefs were confronted with those of other persons in the language of learned communities, which was mostly Latin. By 1600 the humanists were no longer those only interested in knowledge for its own sake but rather for its use by civil society. (Clark, Academic Charisma) (Wikipedia) (Walter Ruegg, Epilogue, The Rise of Humanism, European University History I)

Emerging from 14th century Florence, the humanist movement was stimulated by the rediscovery by scholars of many ancient texts in their original Latin and Greek rather than medieval interpretations. Although initially the humanist was only a teacher of Latin literature, by the 15th century humanism had evolved into an entire curriculum spanning the scholarship of classical authors in rhetoric, philosophy, poetry, and history. The Italian humanists saw their own times as marking a sharp break from the



Michaelangelo's David, a symbol of the Renaissance

Middle Ages, a golden age in which poetry and oratory, painting and sculpture, architecture and music emerged once more as Platonic philosophy was rediscovered, astronomy was brought to perfection, and the cutting tools were found for type to print books.

Humanism by the 16th century moved from being an Italian phenomenon into being a European movement. The new universities of northern Europe began to include humanist thought, including the preparation of students for lives of civility, civilization, and culture, along with a response to social concerns. The conception of what was regarded as medieval underwent considerable changes; scholasticism, the Inquisition, superstition, feudal society, the ecclesiastical forms of authority, were decisively changed through the revolutions of the 17th and 18th centuries. (Haskins) Yet the creation of new knowledge was not done in medieval universities but instead elsewhere. The great revival of science largely bypassed the universities.

Erasmus ("The Prince of Humanism") (Wikipedia)

Desiderius Erasmus Roterodamus was a Dutch Renaissance humanist and a Catholic priest and theologian who enjoyed the sobriquet "Prince of the Humanists." Using humanist techniques for working on texts, he prepared important new Latin and Greek editions of the New Testament. These raised questions that would be influential in the Protestant Reformation and Catholic Counter-Reformation. The chief centers of Erasmus's activity were Paris, Leuven, England, and Basel; yet he never belonged firmly in any one of these places. His time in England was fruitful in the making of lifelong friendships with the leaders of English thought in the stirring days of King Henry VIII, where he taught in Queens' College, Cambridge as the Lady Margaret Professor of Divinity. Erasmus preferred to live the life of an independent scholar and made a conscious effort to avoid any actions or formal ties that might inhibit his freedom of intellect and literary expression. Throughout his life, he was offered many positions of honor and profit throughout the academic world but declined them all, preferring the uncertain but sufficient rewards of independent literary activity.



Erasmus

The Medieval University and the Renaissance

The medieval university missed the boat come the Renaissance. In Italy, many universities continued to apply the scholastic method for one hundreds years after the society around them had reinvented itself in full. The intellectual underpin-

nings of the Renaissance were developed in private academies outside of the university. Humanist ideas got picked up by newly founded universities, including universities in Northern Europe far away from the geographic center of Renaissance action.

During the religious wars of the 16th and 17th centuries, institutions of higher learning were established by local rulers seeking prestige and control (the principle of *cuius regio, eius religio* applied not only to countries, but also to universities). The university in Europe was in decline in the 17th century and became utterly moribund in the 18th century. It was missing in action during the Enlightenment and the Scientific Revolution, which largely took place outside of the university, in private academies, societies, and salons. Many of the leading scholars and scientists were independently wealthy, and it was their wealth that afforded them "a room of their own," and not the protective structures of the university.

About 2,000 years earlier Aristotle was asking what exactly was the purpose of the education of his age: to produce learned men, to educate in virtue, or to satisfy the material needs of society. Learning, virtue, utility: the advancement of knowledge, preparation for the observance of a code of social, moral, and religious conduct, and training for high office or the professions are the three great purposes that all through history and with constant changes of emphasis are repeatedly cited in discussion of the purposed of universities.

Yet the creation of new knowledge was NOT done in medieval universities but instead elsewhere. The great revival of science largely bypassed the universities. (Lohmann, In Defense of the University Bundle)



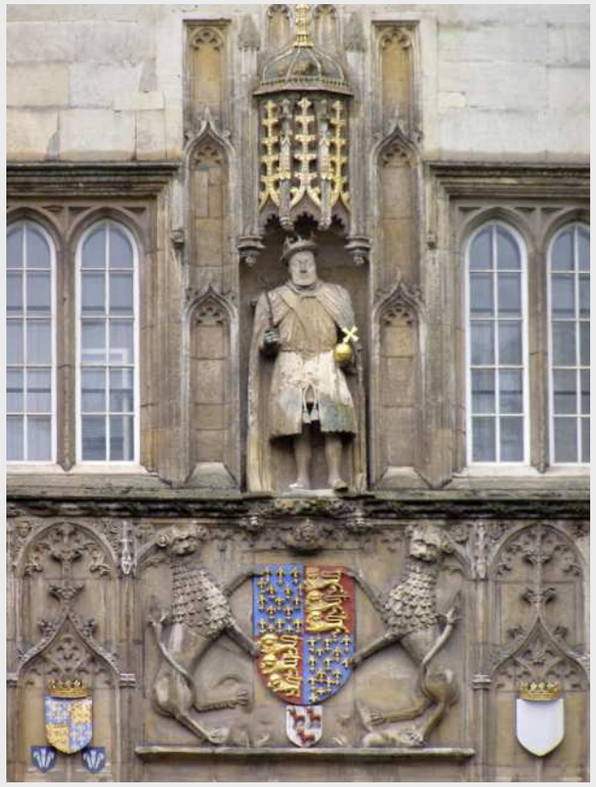
Martin Luther

Reformation

As scholasticism began to crumble in the face of the humanist movement, the Church itself began to face the challenge of reform, urged by scholars such as Erasmus and later Martin Luther. Although roots of the Protestant Reformation trace back to the late 15th century, it gained momentum with the actions of Luther and led to the erosion of Catholic control (particularly Jesuit) through most of northern Europe in the 16th century, driving change in the university. At first the Reformation of Luther represented a serious setback to the university, directed as it was towards the secular, practical, and worldly-ethical. Luther himself even felt obliged to damn the universities as dangerous agents of the papacy.

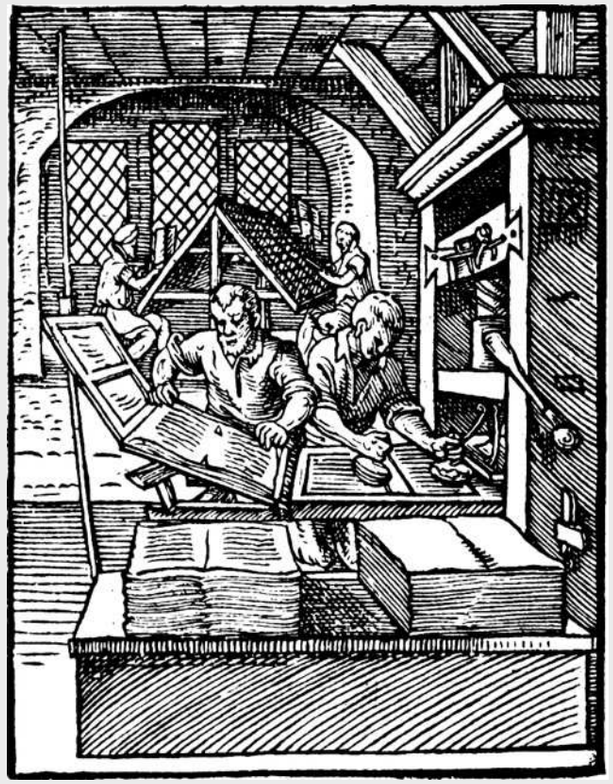
Despite the appearance of the Reformation in England, Oxford and Cambridge preserved most of their medieval corporate autonomy and practices. Much of their curriculum re-

mained Aristotelian. In contrast, the German princes and their ministers did not leave German professors alone. For example, in medieval universities the master of arts signified the ability to lecture on all subjects taught for degrees, required longer study and preparation. The Reformation brought reform in which the new universities had a professoriate from the outset, with professors teaching the ordinary lectures, and masters and doctors without a chair needing the permission of the academic senate to lecture. Unlike the medieval Oxbridge system, professors ran the university.



Cambridge's support of Henry VIII during the Reformation earned them Trinity College

The medieval student was obliged to swear or even produce testimonies that he had attended all the required ordinary lectures. The early modern Protestant student only had to pass the relevant examinations. Whether or not he attended any lectures became his own affair. Furthermore the bachelor of arts disappeared in Protestant Germanies by the 17th century as the curriculum had been taken over by the new gymnasium academicum, a new humanistic secondary school that supplanted the BA curriculum. In later years a university entrance examination, the Abitur, would be introduced as a requirement for admission from the gymnasium education.



The printing press spread knowledge to the world

The medieval university had been focused on preparing men for the professions, including the clergy. In the Early Modern era, however, there was a need for worldly citizens who could shine both in business and in society. A well-rounded education similar to that of the Greeks or Romans became desirable for these new secular men of affairs. Thus the studia humanitatis or humanities were added to the studia divinitatis or theology. As Sheldon Rothblatt (1993) notes, with this change the liberal educational canon was established. Later, the sciences were added to the humanities. During the 16th and 17th Centuries, scholarly innovations took place largely in newly-created acade-

mies and learned societies of various sorts, which focused on the new disciplines. The university was slow to change, expanding the curriculum to include humanities and sciences, and moving from Latin to the vernacular, only after these transformations had occurred elsewhere.

Further Evolution of the European University

The art of printing spread like fire. Although there was first resistance by collectors who claimed that printed books lacked the aesthetic quality, scholars greeted printing with great enthusiasm. Printed books make a great impact on the general population as it became the primary medium for the great intellectual movement of the 16th century such as humanism and the Reformation.

There was little interaction between science and technology in the universities. The technical world was largely controlled by guilds. Most of this activity was outside of universities (e.g., Brunelleschi) The failure of the quadrivium to respond to the challenge from technology also reflected a failure of the prevailing theory of the liberal arts which were thought as a series of specific disciplines and not general areas of knowledge.

The increasing interest in science in the world outside the faculty of arts was accompanied by a growing feeling of frustration within the walls of the faculty itself as many scholars left the university (Copernicus, Kepler, Galileo) throughout the 17th century. Universities responded by creating new faculties such as astronomy.

Yet there were no fundamental changes in university structure or organization after the Middle Ages until 1800. The classical model continued:

- the classical four-faculty university
- the professorial university
- the collegiate university
- the college-university, each with its variations.

A Gothic Influence (Clark)

Beginning with the humanists in the Renaissance, reformers and enlighteners depicted academic degrees as archaic, medieval, barbaric, and, in sum, Gothic. The academic degree was unknown to all civilizations. Its bizarre rituals and symbols could only have been conceived by the same barbarians who put gargoyles on cathedrals. It was the Goths!

The humanists saw the bachelor's and master's curriculum, which just happened to exclude the humanists' subjects, as the embodiment of scholastic barbarism. They condemned them as "Sophists" and "Goths". They preferred titles such as Poet Laureate or Citizen of Many Italian Universities.

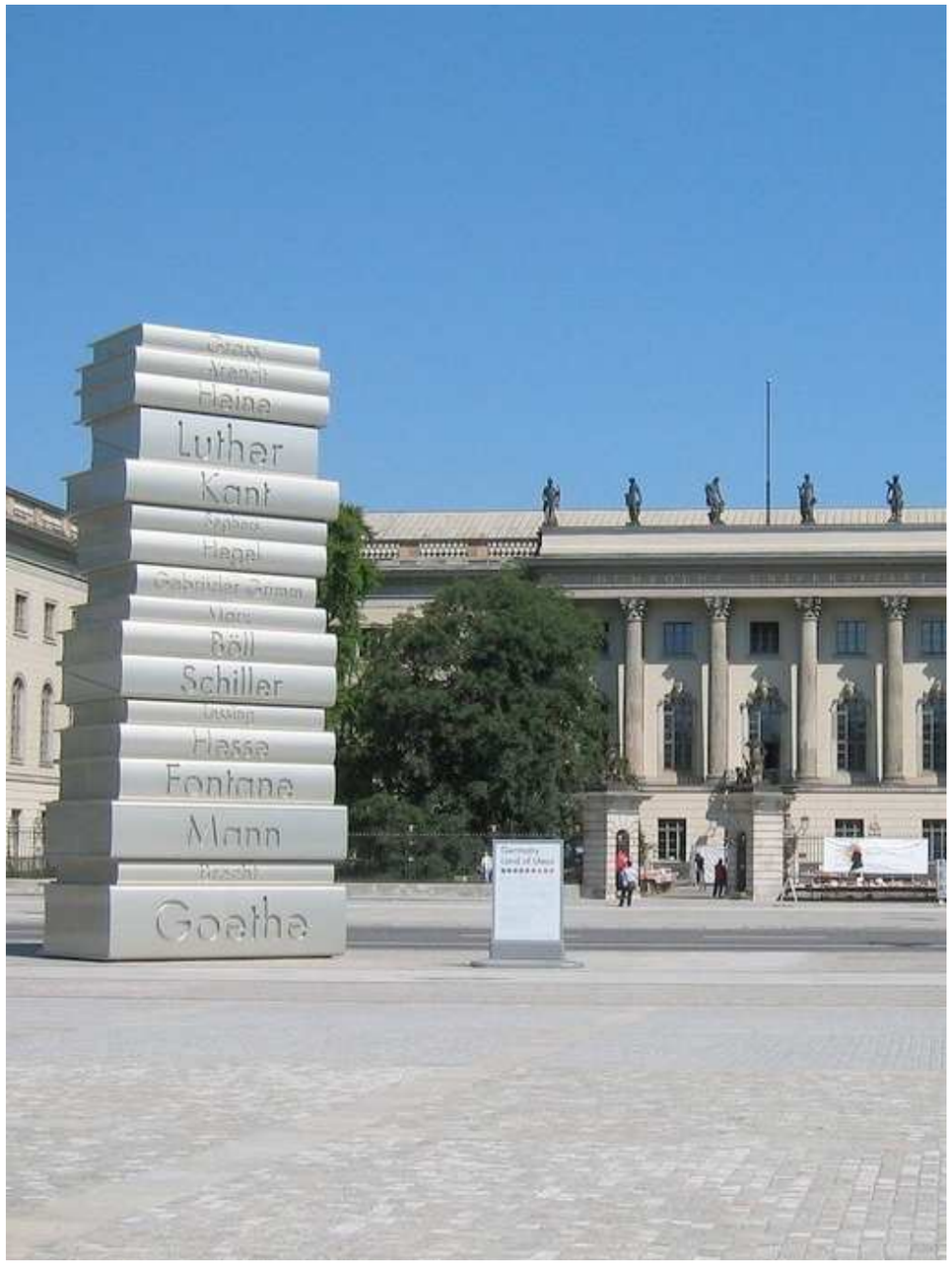
There were many attempts by the lowly masters to become doctors to achieve parity with law and medicine, however. The renaissance and Reformation spelt the beginning of the end for the prestige of masters of arts in many German lands.

Finally in the 19th century the "liberal arts" were able to create their own doctorate degree: the PhD. Or D. Phil., and the crucial rite of passage for attaining that title, the doctoral dissertation. William Clark,"Academic Charisma and the Origins of the Research University, University of Chicago Press, Chicago, 2006

In 1790 there were 143 universities, roughly one university for each one million people. The countries rich in universities were either those of an ancient culture (Italy) or those I which the university had done much to promote scientific development (Scotland). England, Austria, Portugal, and Ireland bring up the rear, since not only were there few universities in these countries, but they were very few compared to the number of inhabitants. Access to universities and to the cultural universe they represented was particularly difficult there.

With the sole exception of the two English universities, all of the large universities of Europe were situated in medieval cities with a population of over 10,000. Yet is also striking that most of the large and expanding cities of the early modern period–London, Amsterdam, Brussels, Hamburg, Berlin, Munich, Marseille, Lyons, Madrid, Lisbon, and Warsaw among others–had no university and remained without one for many years.

On the Brink



The end of the medieval period marked the beginning of the transformation of universities that would eventually result in the modern university, with its new focus on research to create new knowledge and its engagement with the professions to serve society. To the humanistic themes of the Renaissance and the Reformation would be added those of new intellectual movements such as the Enlightenment, revolution, and modernism. So too the discovery of the New World not only provided new opportunities for establishing universities for the resulting European colonies, but also prompted additions to the European university curriculum, as subjects such as human rights and international law became relevant to current times. Newly conquered Spanish territories in the Americas raised questions about aboriginals' rights, and discussion stemmed from the Bible, medieval natural law theories, and humanistic ideas of toleration. (Ruegg)

These movements–the Age of Discovery, the Age of Reason, and the Age of Revolution, provide the context for the next major stage of evolution of the university in 18th and 19th century Europe. But before venturing into a new century in Europe, we must first understand the early impact of medieval, Renaissance, and Reformation Europe on higher education in the New World.

The University as the European Institution

The university is a European institution; indeed, it is the European institution par excellence. As a community of teachers and taught, accorded certain rights, such as administration autonomy, curricula, and scholarship and the awarding of publicly recognized degrees, it is a creation of medieval Europe. Furthermore it is the only European institution which has preserved its fundamental patterns and its basic social role and functions over the course of history.

The idea of the university, and its institutional manifestation, was refined over the course of eight centuries. The university is a hybrid mix of bottom-up elements, which were shaped by evolution, and top-down elements, which are the result of deliberate design. The structures and norms of the university allow human beings to conduct systematic and cumulative research and thereby gain a better understanding of the way the world works. The medieval university with its emphasis on speculative theology and law helped Western Europe shake off the suffocating yoke of the Church and develop complex political and economic institutions. The German university with its cutting-edge applied research and humanistic teaching ideals contributed to the industrialization of the German economy and the consolidation of the German nation. (Susanne Lohmann)

No other European institution has spread over the entire world in the way in which the traditional form of the European university has done. The degrees awarded by European universities, the bachelor's degree, the licentitate, the master's degree, and the doctorate, have been adopted in most diverse societies throughout the world. The four medieval faculties of arts (variously called philosophy, letters, arts, arts and sciences, and humanities), law, medicine, and theology have survived and have been supplemented by numerous other disciplines.Even the name of the universitas, which in the Middle Ages was applied to the corporate organization of teachers and students, has in the course of centuries been given a more particular focus: the university, as universitas litterarum, has since the 18th century been the intellectual institution which cultivates and transmits the entire corpus of methodically studied intellectual disciplines. (Walter Ruegg, European University History I)

Chapter 3

The New World

"Imported with so much of everything else from England, the collegiate way in America was from the beginning the effort to follow in the New World the pattern of life which had developed at the English colleges. The collegiate way is the notion that a curriculum, a library, a faculty, and students are not enough to make a college. It is an adherence to the residential scheme of things. It is respectful of quiet rural settings, dependent on dormitories, committed to dining halls, permeated by paternalism." (Rudolph, 1960)



The Colonial Colleges 1650 - 1800



A statue of John Harvard sits patiently awaiting new students in Harvard Yard.

"After God had carried us safe to New England, and we ... rear'd convenient places for God's worship ... dreading to leave an illiterate Ministry to the Churches, when our present Ministers shall lie in the Dust ... it pleased God to stir up the heart of one Mr. Harvard, a godly gentleman and a lover of learning ... to give the one half of his estate ... towards the erecting of a college and all his Library."

The earliest American colleges were founded by the British colonists bringing with them their experience from Oxford and Cambridge. In fact the first American college was Harvard, founded in 1643 by a large contingent of Cambridge men in Puritan Massachusetts, which also named its village after their former university. Over the next century each of the American colonies would found similar institutions to provide educated men for both the clergy and leadership roles in their governments: William and Mary in the Virginia colony in 1693, the Collegiate School (Yale) in Connecticut in 1701, the Academy of Philadelphia (Penn) in 1740, the College of New Jersey (Princeton) in 1746, Kings College (Columbia) in New York in 1754, the College of Rhode Island (Brown) in 1764, Queens College (Rutgers) in New Jersey in 1764, and Dartmouth College in New Hampshire in 1769.

While each of the colonial colleges was influenced by the English university, they also developed unique features arising both from the religious denomination of their founders as well as the particular circumstances of their colonial birthplace. For example, the founders of Harvard departed from



the faculty governance of Oxbridge to create their institution instead as an independent, self-perpetuating corporation governed by a lay board of overseers rather than a small group of faculty fellows, a principle of lay governance that would become an important feature of all of American higher education. Yale (the Collegiate School) was initially a wandering institution, moving from town to town in Connecticut to conduct teaching in the homes of local ministers before finally set-

The First College in North America

Since our historical memory of the colonial colleges is dominated by the perspectives of those who survived and triumphed, Harvard's founding in 1643 is regarded today at the first American college because the institution endured. In contrast the Virginia Company donated land and funds to found a university 25 years earlier, but the Indians massacred 347 settlers including the deputy in charge of the college lands.

The College of Henricopolis or University of Henrico, near Jamestown, was chartered in 1618 and construction was possibly started, but was destroyed wit the town in the Indian Massacre of 1622 and not rebuilt. The Virginia Company of London gave orders for the laying out of grounds for a university at Henrico, of which an Indian School was to be a branch, and endowed it with 10,000 acres of land. Henrico was on the north side of the James River, 12 miles below the present city of Richmond.

Sir Edwin Sandys, treasurer of the Virginia Company, reported that £1,500 had been collected toward the proposed college, following authorization of King James I that each bishop in England makes a collection in his diocese for the purpose. The General Assembly of Virginia petitioned the Company to send workmen from England for "erecting the University and



College." George Thorpe was appointed by the Virginia Company as the first deputy in charge of the College lands. An Indian uprising left 347 colonists dead. Thorpe was killed and Henrico annihilated. When the charter of the Virginia Company was revoked in 1624, Virginia became a royal colony and plans for the College were abandoned.

At times the College of William and Mary has claimed itself to be the nation's first college "in its antecedents" and technically this is true--W&M's charter or foundational concept was laid decades before Harvard's founding.



The Names of the Colonial Colleges

The names of the early colonial colleges bear the influence of gifts key to their early survival. For example, John Harvard was a Puritan minister who died a year after emigrating to Massachusetts, leaving behind half of his estate and 400 volumes to the new college founded in Cambridge two years ear-

GALLERY 3.4 Yale College (1800-1900)



Yale College from the New Haven Green

1 of 11

lier, hence leading the school to rename itself "Harvard College" (although the college burned down two years later destroying most of the books from the bequest). The origin of Yale's name is even stranger. A member of the Harvard corporation, Cotton Mather, suggested that a Boston-born Englishman, Elihu Yale, was living in London "amid the magnificent oriental plunder of his days with the East India Company" and might be persuaded to make a gift to the Connecticut college in return for it "wearing his name"–and possibly even provide a substantial bequest. Following a small gift of books,

East India dry goods, and a portrait of King George I, the name was indeed changed to Yale–although there is considerable evidence in the records that suggest that the original intent had been to name only a building after Yale. Unfortunately this was the only gift the college received from the benefactor since he was of Anglican persuasion and never very interested in the Unitarian-established college.

The renaming of the several other colonial colleges after obscure benefactors follows a similar pattern–one well known to university presidents and governing boards today. (Yale)

The Collegiate Way



In educational practices the colonial colleges borrowed heavily from their English roots. Although the humanism of the Renaissance was the spirit behind the Reformation ideal of the learned clergyman, the curriculum continued to be based heavily on the content of scholasticism and the pedagogy of Oxbridge, stressing the Greek and Latin, logic, rhetoric, and moral philosophy and taught by young scholars serving as tutors rather than professors. Books were a rarity so that lecture, memorization, and recitation drills tended to dominate the classroom. Despite the emergence of the spirit of the Enlightenment–the Age of Reason–in pre-Revolutionary America and its influence on leaders such as Jefferson, Franklin, and Paine, the colonial colleges remained very much moored to scholasticism and medieval learning until early 19th century when a new wave of institutions began to appear in the young nation in the early state universities of North Carolina, Virginia, and Michigan. In fact, the charters of the colonial colleges make little mention of faculty (masters or professors), and a full-time academic profession did not appear in North America until the latter half of the 18th century. (Rudolph)

In other respects, however, there were some important early departures from Oxbridge traditions. For example, the Oxford and Cambridge colleges functioned less as academic institutions and more as boarding schools for socializing young men from the aristocracy, with the primarily goal of "transforming savages into gentlemen", the words of one educator. Yet in the American colonies the students came more from the mercan-

tile class rather than the cavaliers and rakes of Oxbridge, and there was a greater commitment to stress not only the classics but to provide the mental discipline necessary for leadership in church and state. Since there was little public provision for elementary education in the American colonies, they enrolled quite young students (typically 16 years of age) whose early education rested largely with the parents (an early example of home schooling).

The colonial colleges also broke important new ground in establishing new principles of governance and legal structures. Distrusting the autonomy of Oxbridge fellows, they adopted instead the Scottish tradition by chartering the colleges as corporations, governed by external boards that, in turn, vested considerable authority in an appointed president of the college–a radical departure from European universities, which tended to be governed by faculty bodies (England), the crown (Spain), or the state (France, Germany). Although independent with strong religious affiliations, America's early colleges were established and initially supported by colonial governance and hence were as linked as strongly to the state as to the church, particularly after the Great Awakening of religious fervor of the late 18th century made strict denominational control of college life more difficult to sustain. Although today these institutions, now comprising the Ivy League of universities, vigorously proclaim their independence, their heritage was very much as "public" institutions, obliged to adhere to their charter and abide by laws that recognized their responsibility to colonial society, and receiving a significant fraction of their support from public sources.

Although the great medieval universities in Europe were in urban environments–e.g., Bologna, Paris, Madrid, Vienna–the colleges of Oxford and Cambridge were in quiet rural settings, self-contained with dormitories, dining halls, faculty residences, and libraries. Hence the American colonial colleges largely followed this pattern, in rural villages such as Cambridge, Williamsburg, New Haven, and Princeton. Of course the concentration of a spirited group of young students, far removed from not only their families but adult communities, could lead to the annoyance of occasional misbehavior, but this too was regarded as part of the process of young boys (remember, they were enrolled at age 16) growing up in such a boarding school environment. Hence the colonial colleges exhibited strong commitment to creating a learning community dependent upon dormitories, dining halls, a rural setting, and strong in loco parentis.

The Collegiate Way

Imported with so much of everything else from England, the collegiate way in America was from the beginning the effort to follow in the New World the pattern of life which had developed at the English colleges. The collegiate way is the notion that a curriculum, a library, a faculty, and students are not enough to make a college. It is an adherence to the residential scheme of things. It is respectful of quiet rural settings, de-



Dormitories of Yale College

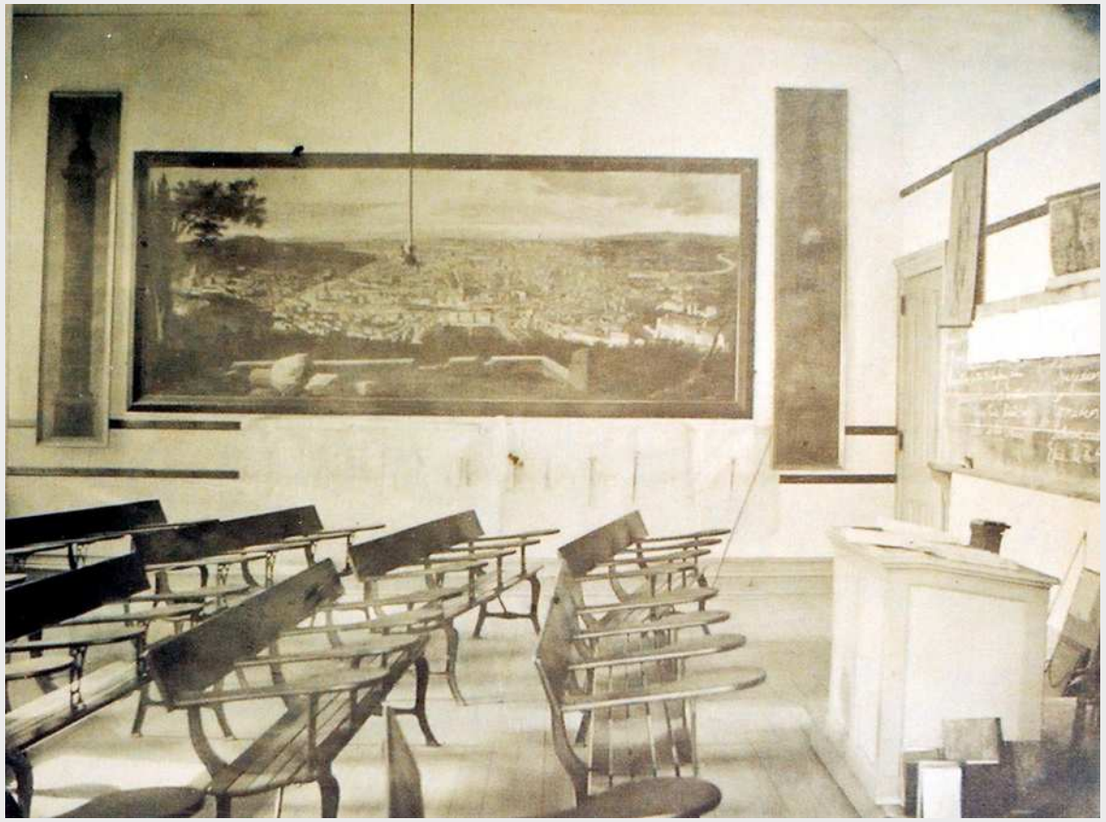
pendent on dormitories, committed to dining halls, permeated by paternalism.

The first requirement for the full development of the collegiate way was a proper setting. Paris, Bologna, Prague, Vienna, Padua, Cologne—the great medieval universities were urban, but the founding of the English universities in the country shaped the American predilection for country colleges. The antipathy to towns as college sites was so strong that the University of North Carolina's charter provided that it could not be located within five miles of any seat of government.

The dormitory concentrated into groups eager, active, healthy, young men who were as capable of being whipped into an explosive rebellion as into a religious revival. Not every college underwent a rebellion, and the rebellions were inspired by a variety of conditions. Generally, however, they took the form of a concerted strike of a majority of the undergraduates, protesting against some real or imagined wrong, threatening to withdraw from the college and to abandon it to the uncertainties of enrollment and finance that were bound to follow.

The residential pattern which made every American college a home away from home was of English origin. The founders of Harvard attempted to re-create at Cambridge the residential college environment they had known at the old Cambridge in England. More specifically Emmanuel College at Cambridge, a Puritan foundation, was the model for Harvard. (Queen's College at Oxford was the model for William and Mary.)The idea of the college as essentially aristocratic in clientele and purpose reflected English experience. The names of the four college classes—freshman, sophomore, junior sophister, senior sophister—came from England.

The minute regulation of conduct was not peculiarly Puritan as much as it was peculiarly collegiate, breathing not the free spirit of adult scholarly inquiry but the atmosphere of a boarding school for small boys, since students typically entered at the early age of 15 and spent only one or two years at the college. President Jeremiah Day of Yale noted that the American college was more like a German gymnasium than a German university. He expected that most boys would graduate from college at 18 (the age they finished the gymnasium). In some



The classroom of the 19th century American college

ways Harvard was so successful at being a small boys' school that some of the finest rakes in England were sent overseas to the reformatory on the banks of the Charles.

Wayland of Brown described dormitory life as unnatural. Most of the evils of college life he believed could be attributed to dormitories. During the 1850s such concerns inspired the abandonment of dormitories under the leadership of Henry Tappan, who in other respects was unsuccessful in his attempts to transform Michigan from an English college into a German university. President Eliot also tried to kill off dormitories at Harvard (although Yale never weakened). But eventually such efforts failed and dormitories (or better said, "residence halls") appeared on most university campuses.

The first requirement of the country college was the dormitory. For the dormitory held young men to a common experience. The dormitory concentrated into groups eager, active, healthy, young men who were as capable of being whipped into an explosive rebellion as into a religious revival. Not every college underwent a rebellion, and the rebellions were inspired by a variety of conditions. Generally, however, they took the form of a concerted strike of a majority of the undergraduates, protesting against some real or imagined wrong, threatening to withdraw from the college and to abandon it to the uncertainties of enrollment and finance that were bound to follow.

Brown's Wayland, described dormitory life as unnatural. Most of the evils of college life he believed could be attributed to dormitories. During the 1850s at Michigan they inspired the abandonment of dormitories under the leadership of Henry Tappan, following the pattern of German universities who treated students as adults with independent living quarters. Harvard's Eliot also tried unsuccessfully to kill off dormitories (although Yale never weakened). But eventually, between 1896 and 1915 holdouts such as Columbia, Michigan, Cornell, and Illinois were forced to accept the dormitory rationale. Frederick Rudolph, The American College and University, The University of Georgia Press, Athens, 1962, Ch 5

Learning in the early American colleges



During the early history of the colleges, the faculty were not scholars. In fact, the long-standing faculty member and president of Amherst College, Mark Hopkins, of whom it was said that "The best way approach to learning is for a student to sit on a log with Mark Hopkins on the other end." And yet Hopkins once said: "You read books. I don't read books. I fact I never did read any books."

Professors taught a subject, while a tutor taught a class. The institution of the tutor would disappear, only to return with the Harkness gifts to Harvard and Yale. The tutor was a young man just out of college, perhaps with nothing else to do, unlikely to make a career of teaching but conceivably so, probably interested merely in earning a few dollars before going to theological school.

The agency that perhaps best served the purposes of the collegiate way was paternalism, whether in the conscious ordering



of the college regimen or in the informal relationships that grew up between faculty and student in the smaller colleges.

The collegiate way helped to establish the philosophic and historical foundations for many of the nonintellectual purposes of the American college. The values that it cherished helped to restrain the intellectual (and there university) potential of many of the older colleges.

The collegiate way and the religious orientation undercut any possibility of a pervading intellectual purpose, but the course of study itself, with its capstone senior year in moral and intellectual philosophy, usually taught by the president, led students along the path to piety not to intellect.



Benjamin Franklin

As the years passed, confusion was piled on confusion, not only because colleges changed their letterheads to read “university” but because the road to university purpose, function, or status was in no sense clearly defined, aside from those few institutions such as Michigan, Cornell, and Johns Hopkins adopting the German university model. In fact, at Johns Hopkins, the position was devel0ped that a true university was postcollegiate in its orientation, that its essence was located in the graduate faculty of arts and sciences whose life revolved around the advancement of knowledge. Frederick Rudolph, The American College and University, The University of Georgia Press, Athens, 1962, Ch 8

Benjamin Franklin and Philadelphia Academy (Utility) (Wikipedia)

In the fall of 1749, eager to create a college to educate future generations, Benjamin Franklin circulated a pamphlet titled "Proposals for the Education of Youth in Pennsylvania," his vision for what he called a "Public Academy of Philadelphia." Unlike the other Colonial colleges that existed in 1743 — Harvard, William and Mary, and Yale — Franklin's new school would not focus merely on education for the clergy. He advocated an innovative concept of higher education, one which would teach both the ornamental knowledge of the arts and the practical skills necessary for making a living and doing public service. The proposed program of study became the nation's first modern liberal arts curriculum. A board of trustees was assembled and the new academy took over a large building, originally intended as a charity school. This was later to influence the formation of the University of Pennsylvania.

Governance

It had been the clear intention of the founders of Harvard to carry on the English tradition of resident-faculty control. But eventually there developed two bodies: the faculty corporation which was in the tradition of English practice, and the external lay body which represented the founders.

Yale inaugurated a type of governing board which would become standard American practice—the single absentee body (1701). The absentee lay board was an epitaph for faculty government, the English tradition of a corporation of teaching fellows. They drew a picture of the college as an ivory tower, a

retreat for educators in whose hands busy practical men could not altogether afford to leave questions of education.

But Wayland observed: "How can colleges prosper directed by men, very good men to be sure, but who know about every other thing except about education. The man who first devised the present mode of governing colleges in this country has done us more injury than Benedict Arnold." (Frederick Rudolph, The American College and University, The University of Georgia Press, Athens, 1962, Ch 8)

"Clark Kerr notes that throughout history there have been several competitors for power in the university:

- The students had all the power once in Bologna. Jefferson tried student self-government at UVa, but quickly abandoned it when all the professors tendered their resignations. Students have most influence with their feet…what they choose.

- The faculty (guilds of masters) organized and ran the University of Paris and later Oxford and Cambridge. Today faculties have authority over academic matters, but not over the institution as a whole.

- Public authority (emperors, popes, kings, Napoleon) also have impact. But the U.S. distinctive device for public authority has been the lay board (although it was also used in Holland during the 16th C).

- The administration is a relatively recent phenomena, although guilds of masters or students have selected rectors. In the American university the administration has become by force of circumstances if not by choice an increasingly prominent feature.

Inventiveness should be left to the individual faculty member with the protection and stabilily of the surrounding institutional structure (think Galileo in Padua, Erasmus at Oxford, and Newton at Cambridge)." (Clark Kerr, The Uses of the University)

Early State Universities



The Old Well at the University of North Carolina, the nation's first state university.

Following the Revolutionary War, the governments of the new states began to form universities, first in the south where the colonial colleges had not appeared, e.g., the University of Georgia in 1785, the University of North Carolina in 1789, and the University of South Carolina in 1793. (Here it should be noted that although Georgia's university was founded first, it did not enroll any students until 1801; hence North Carolina usually claims the title of the first "state" university.) By 1800 there were 25 colleges, doubling to 52 in 1820 and then doubling and doubling yet again to 241 by 1860. An unusual feature of this rapid expansion was the very limited role of the federal government in the establishment of higher education, in contrast with the experience in Europe. Instead both religious organizations and the states themselves played the leading role in establishing the new institutions, albeit at times with incentives provided by the federal government. In fact the only two "national" institutions were those for military education: West Point in 1802 and Annapolis in 1845.

During the early half of the 19th century, the religious revival movement known as the Great Awakening was manifested in the efforts of religious denominations to establish hundreds of small religious colleges across the Midwestern United States. Although many of these efforts failed, some of these religious colleges succeeded, eventually shedding their sectarian origin to become prominent independent colleges such as Oberlin, Denison, Wooster, Kenyon, Ohio Wesleyan, and Miami–the lat-

Gallery 3.6 The First State Universities



The University of North Carolina

1 of 14

Gallery 3.7 Early Private Colleges



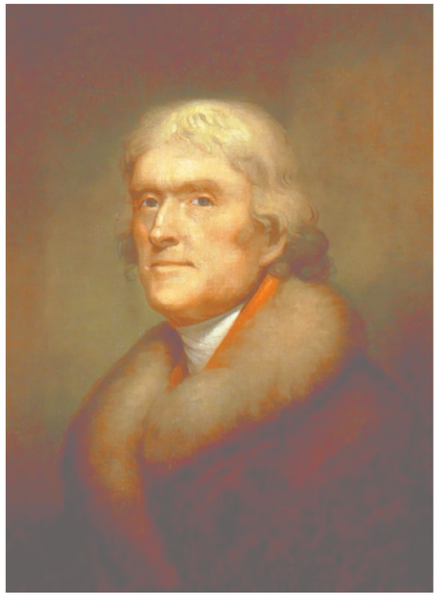
Oberlin College

1 of 12

ter two being appropriately located in the villages of Athens and Oxford!

There was also surge in the number of state colleges, stimulated in part by federal actions. Key was a sequence of land-grant acts enacted by Congress in which the income from the sales of federal land was dedicated to the founding and support of new colleges as the population of the new nation began to move westward. Although the land-grant movement is generally associated with the Morrill Act of 1863, in fact one of the most consequential efforts was the Northwest Ordinance, which established the policies by which the western territories could attain statehood. This was patterned after the Land Ordinance developed by Jefferson, and passed by Congress in 1787 when the Ohio River valley was being settled. When any part of the territory had acquired 60,000 free inhabitants, it could become a state (with Congressional approval). But even more critical were the provisions of civil rights and

liberties, religious freedom, and education, especially personal freedom. But it also decreed "there shall be neither slavery nor involuntary servitude in the said territory." But equally significant for our purposes was the Northwest Ordinance's statement of the importance of education in the new states: "Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." To this end, the Ordinance utilized the sale of township lands to finance the creation of schools in the new territories. In the Ohio territory Miami University was chartered in 1811 and



in which students would live

side-by-side with faculty, surrounded by Greek columns and crowned by the rotunda of the college's library, was striking in architecture and lasting in its distinction. The University of Virginia was distinctive in two other ways: it had no religious affiliation, and it required no religious asset of its students. It also broke from the classical curriculum. But the University provided no model for other institutions because of Jefferson's belief that students could take any classes they wished



and his opposition to degrees—indeed Virginia granted no degrees until 1868.

Yet, even as the state college began to emerge as the true paradigm of public higher education, the colonial colleges were able to free themselves from public control, establishing themselves as independent institutions. Key here was the 1819 landmark Dartmouth College decision by the Supreme Court ruling that the institution was not a civil or public institution nor was its property public, but rather it was a private institution, albeit with an object to benefit the public. This ruling providing the key distinction between public and private institutions.

The State Universities

The state universities were the product of at least three movements: The earliest, beginning with the University of Georgia in 1785, were inspired by the success of the war for independence and by an effort to find institutional expression for the Age of Reason and for a developing nationalism. This first group of state universities was concentrated in the South, in states where the colonial colleges had not taken root.

The second great flowering of state universities was in consequence of the westward movement and in consequence of giving two townships of federal lands to each new state as support for a "seminary of learning" (e.g., the Northwest Ordinance. Another group developed out of the pattern of federal



The Northwest Ordinance on the frieze of Michigan's Angell Hall

land-grants that first appeared in the 1787 contract between government and the Ohio Company (leading to Ohio University and Miami University). However not until after the Civil War on the other hand did many states choose to turn their university endowments over to the support of universities.

By the even of the Civil War perhaps a dozen universities had been created by these grants but as institutions of learning they were almost indistinguishable from the denominational colleges.After the Civil war, the leadership of the University of Michigan and later of the University of Minnesota and the



University of Wisconsin, the state universities achieved an identity of their own.

In the post Civil war period, the American state university would be defined in the great Midwest and West through incentives such as the Morrill Land-Grant Act, where frontier democracy and frontier materialism would help to support a practical-oriented popular institution. Some of the states established the concept of a unified system of free state education, on the European pattern, with the state university ad the head of the system. The rationale of course was completely Jeffersonian; indeed, the state universities were reviving the old Jeffersonian position. Frederick Rudolph, The American College and University, Ch 13, The University of Georgia Press, Athens, 1962)

The Early Growth of Colleges and Universities in America

Higher education would become America's "cottage industry". In 1800 there were 25 colleges. By 1820, 52. But this would be dwarfed by further growth, increasing to 241 in 1860. Creativity in the naming of institutions was carried to an extreme in the upper Midwest where in 1817 a new "University of Michigania" was proposed with the name "Catholepistemiad". Fortunately for the sake of prounuciation, this name did not catch on elsewhere and eventually fell into disuse even in Michigan.

One conspicuous feature of the new United States was the widespread distrust of a strong national government. The only "national" institutions were the two service academies, West Point in 1802 and Annapolis in 1845.

One of the important driving forces for the establishment of 19th century colleges was the Great Awakening, a religious revival movement led by evangelical Protestant ministers, a sharp increase of interest in religion, a profound sense of conviction and redemption on the part of those affected, a jump

in evangelical church membership, and the formation of new religious movements and denominations. This led to a great fervor to found new colleges to propagate religious faith. In 1811 Miami University and 1818 Ohio University were founded. Illinois opened in 1829 with nine students, none of whom had ever studied English grammar.In 1830 Indiana College was founded. Perhaps as many as 700 colleges tried and failed before the Civil War.

It was pointed out that England was managing nicely with four universities for a population of 23,000,000, while Ohio with a population of 3,000,000 boasted 37 institutions of higher learning. (John R. Thelin,"A History of American Higher Education", Johns Hopkins Press, 2004)

Thomas Jefferson and University of Virginia (The Enlightenment)

The University of Virginia was conceived by Thomas Jefferson very much in the spirit of the Enlightenment with the mission of both diffusing and advancing knowledge. In 1800 Thomas Jefferson explained his vision in a letter : "We wish to establish in the upper country of Virginia, and more centrally for the State, a University on a plan so broad and liberal and modern, as to be worth patronizing with the public support, and be a temptation to the youth of other States to come and drink of the cup of knowledge and fraternize with us." Guided by Jefferson, the school laid its first building's cornerstone later in 1817 and the Commonwealth of Virginia would charter the new university on January 25, 1819.

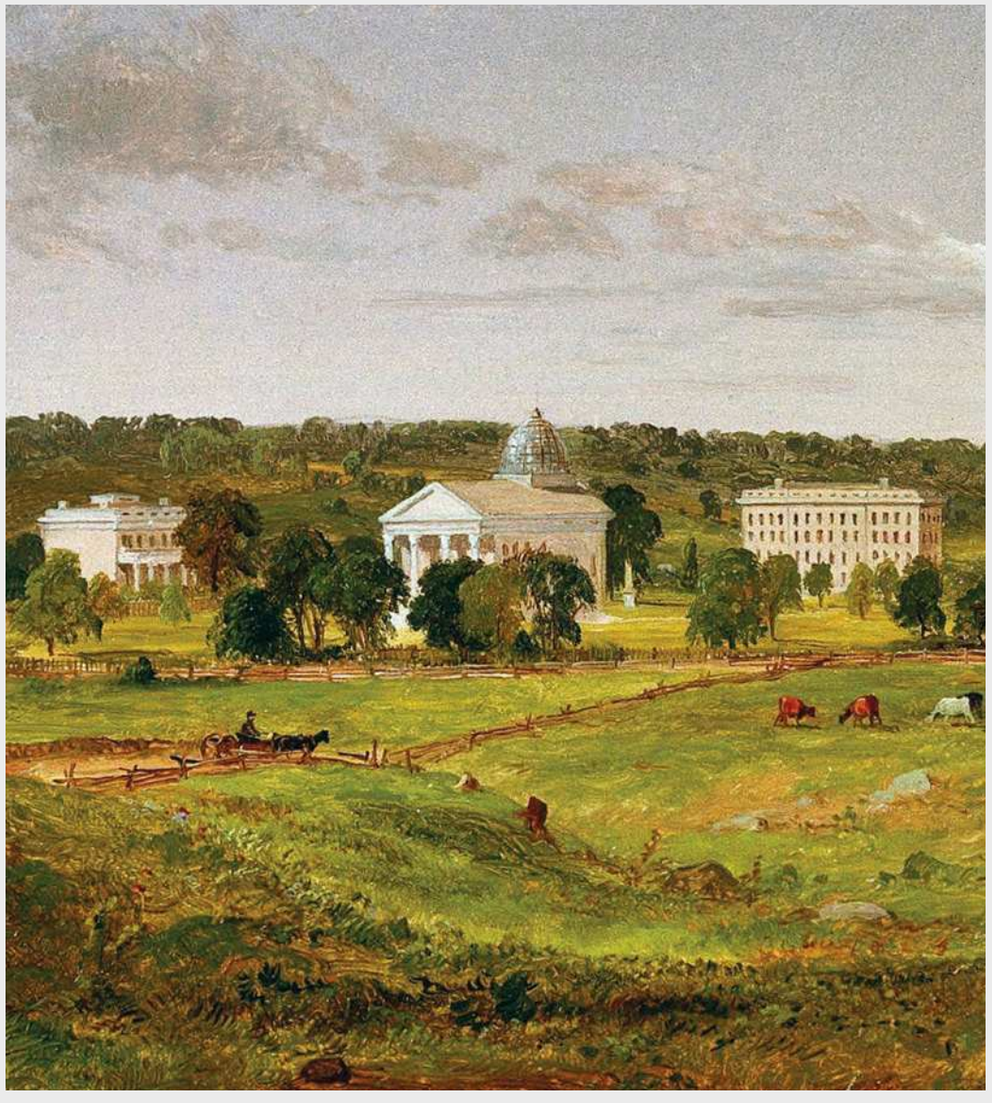
The Charlottesville land for the new institutions was purchased from James Monroe, and James Madison was one of its early leaders. Jefferson's original architectural design revolves around the "Academical Village", and that name remains in use today to describe both the specific area of The Lawn, a grand, terraced green space surrounded by residential and academic buildings, the gardens, The Range, and the larger University surrounding it. One of the largest construction projects in North America up to that time, the campus designed by Jefferson was centered upon a library (then housed in the Rotunda) rather than a church—further distinguishing it from peer universities of the United States, most of which were still primarily functioning as seminaries for one particular religion or another. The New York Times said that the design of the University of Virginia "was incomparably the most ambitious and monumental architectural project that had or has yet been conceived in this century".

Some of Jefferson's proposals were quite radical: the university would offer no degrees and "Every student shall be free to attend the schools of his choice, and no other than he chooses." Other universities of the day allowed only three choices of specialization: Medicine, Law, and Religion, but under Jefferson's guidance, the University of Virginia became

the first in the United States to allow specializations in such diverse fields as Astronomy, Architecture, Botany, Philosophy, and Political Science. Jefferson explained, "This institution will be based on the illimitable freedom of the human mind. For here we are not afraid to follow truth wherever it may lead, nor to tolerate any error so long as reason is left free to combat it." Jefferson even went so far as to ban the teaching of Theology altogether. In a letter to Thomas Cooper in October 1814, Jefferson stated, "a professorship of theology should have no place in our institution" and, true to form, the University never had a Divinity school or department, and was established independent of any religious sect.

Jefferson, ever the skeptic of central authority and bureaucracy, had originally decided the University of Virginia would have no President. Rather, this power was to be shared by a Rector and a Board of Visitors. Jefferson later proposed student self-government similar to Bologna, but he quickly abandoned the proposal when all the professors tendered their resignations. He also was opposed to rigorous curriculum requirements and even declined to offer degrees. However by the late 19th century the university found its capacity to manage its affairs and attract students required it to adopt the more common practices of other American colleges. (Rudolph, Clark Kerr, The Uses of the University (Harvard University Press, 1963)

A Case Study: The University of Michigan



The early campus of the University of Michigan (Cropsey, 1860)

One of the most interesting–and perhaps most important–of the institutions founded early in the 19th century was the University of Michigan, which not only would become a trailblazer in shaping the development of the American university throughout the 19th and 20th century, but would provide many of those academic visionaries who would lead this effort both at Michigan and at other universities across the nation. It can be argued that it was in the Midwest, in towns such as Ann Arbor and Madison, that the early paradigm for the true university in America first evolved, a paradigm capable of responding to the needs of a rapidly changing nation in the 19th Century and that still dominates higher education today. In many ways, the University of Michigan has been throughout its history a flagship of public higher education in America. Although the University of Michigan was not the first of the state universities, it was the first to be entirely free of sectarian control, created as a true public institution, and responsive to the people of its state. It also traces its early heritage to two quite different models of higher education in 18th century Europe.

The University of Michigan (or more accurately, "*the Catholepistimead or University of Michigania*", a rather odd name coined by one of its early founders) was established in 1817 in the village of Detroit, two decades before Michigan achieved statehood, by an act of the Northwest Territorial government and financed through the sale of Indian lands granted by the United States Congress. Actually, the first incarnation of the



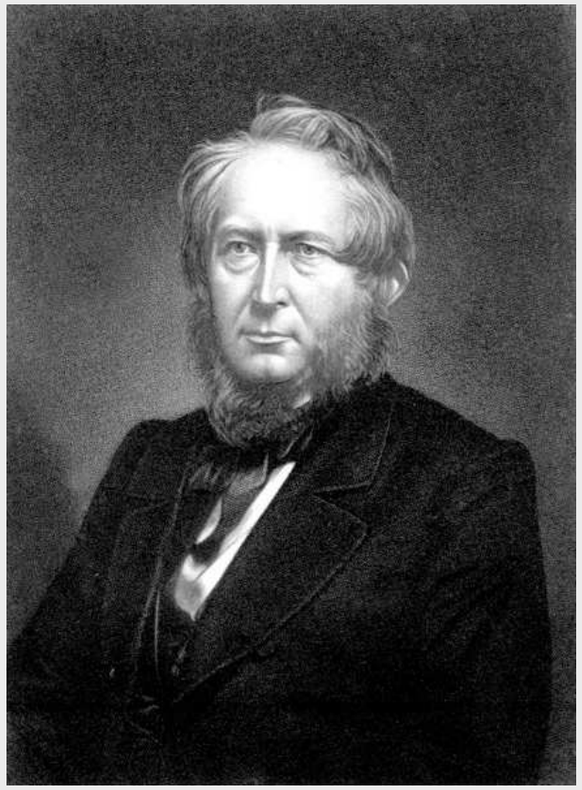
University of Michigan (aka “Catholepistemiad”) was not a university but rather a centralized system of schools, borrowing a model from the Imperial University of France founded by Napoleon a decade earlier. It was only after the State of Michigan entered the Union in 1837 that a new plan was adopted to shift the university beyond secondary education, establishing it as a “state” university after the Prussian system, with programs in literature, science and arts; medicine; and law–the first three academic departments of the new university.

terms, the University of Michigan was actually a United

its federal lands and student fees rather than state resources until after the Civil War. Hence throughout its history the university has regarded itself as much as a national university as a state university, albeit with some discretion when dealing with the Michigan State Legislature. This broader heritage has also been reflected in the university’s student enrollment, which has always been characterized by an unusually high percentage of out-of-state and international students. Furthermore, Michigan’s constitutional autonomy, periodically reaffirmed through court tests and constitutional convention, has enabled the university to have much more control over its

own destiny than most other public universities.

Implicit in the new constitution was also a provision that the university's regents be determined by statewide popular election, again reflecting public dissatisfaction with both the selection and performance of the early-appointed regents. (The last appointed board retaliated by firing the professors at the university.) The first assignment of the newly elected board was to select a president for the university (after inviting back the fired professors). After an extensive search, they elected Henry Philip Tappan, a broadly educated professor of philosophy from New York, as the first president of the reconfigured university. We will return momentarily to discuss Tappan's unusual leadership of the university and his prescient vision of the future of the American university. But first it is important to consider a parallel movement in America that created an alternative to the collegiate classical curriculum: a utilitarian paradigm that launched a movement toward a specialization of knowledge capable of better serving the needs of an industrial society, and in the process, restructured the division of intellectual labor within the university: the American Land-Grant Movement.



Michigan's first president: Henry Philip Tappan

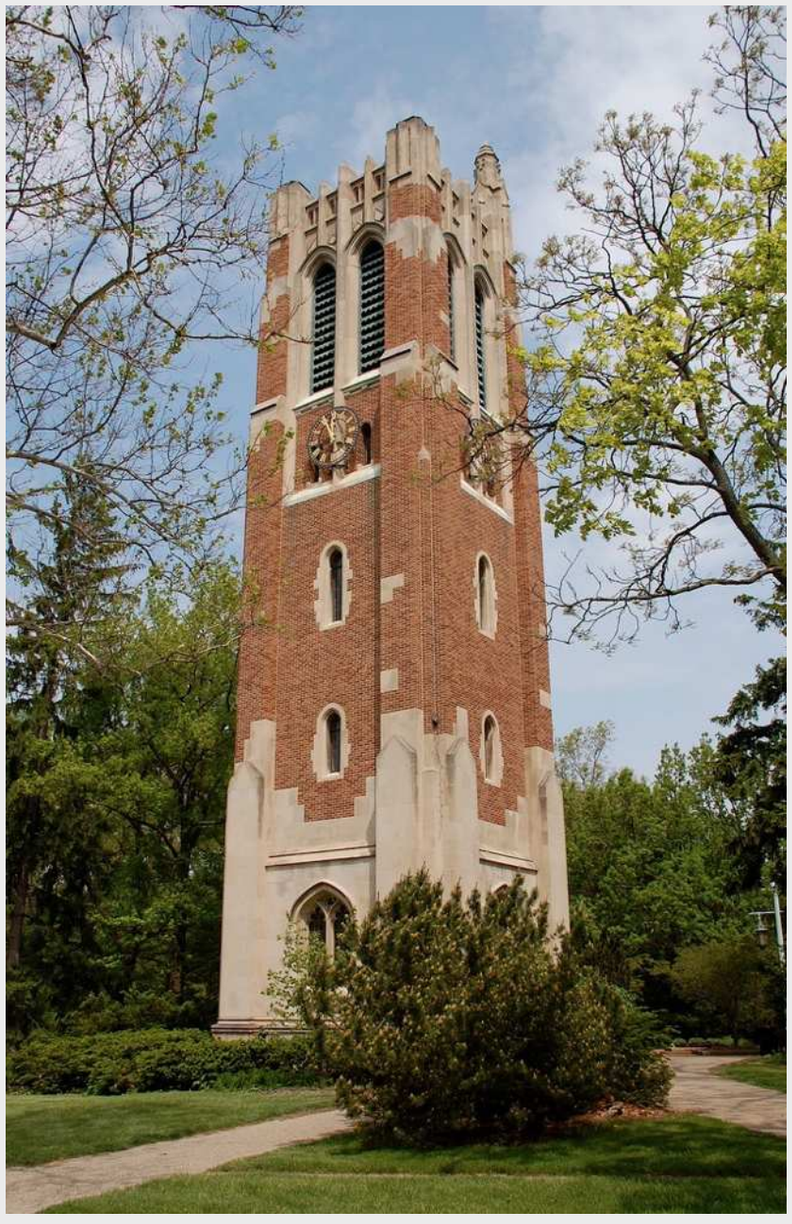
Did the UM Board of Regents Regard Michigan as a "State" University?

Twenty-First Annual Report of the Board of Regents of the Superintendent of Public Instruction, December, 1859:

"The University of Michigan is indebted for its existence of the munificence of Congress, in the redemption of its solemn pledge given to the whole Northwest that 'schools and the means of education should forever be encouraged', and to keep up the mutual good feeling between our State and the General Government in which the endowment of the University originated. The doors of all its Departments are open to students from Every State in the Union, upon the same terms as to those of our own State; so that it may, in some sense, with propriety, be styled a National Institution, and every State in the Union has an interest in its prosperity."

While the report goes on to thank the State of Michigan for the preservation and management of the University Fund, it does remind the State that a portion of the lands granted by Congress for the use and support of the University has not yet been selected by the State Officers whose duty it was to make the selection, a duty that "has remained underperformed for more than twenty years".

The Morrill Act



Michigan Agricultural College (later Michigan State University) was an early model for the Morrill Land-Grant Act of 1862

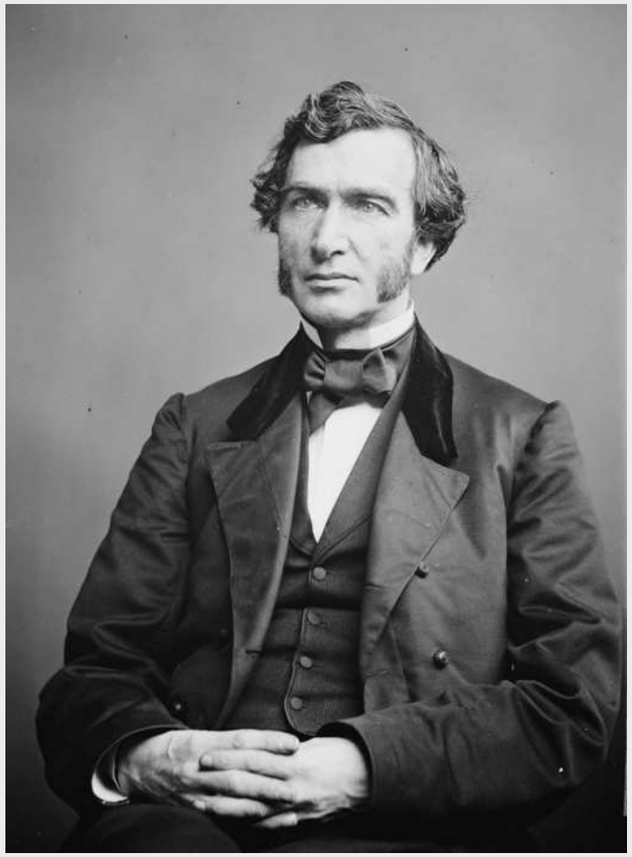
It is interesting that American universities which pride themselves on their autonomy, should have taken their special character as much from the pressures of their environment as from their own inner desires, and that institutions which identify themselves as either "private" or "state" should have found their greatest stimulus in federal initiatives. Certainly the most significant event in defining a uniquely American university was the passage of the Morrill Act in 1862. This Act and its successors defined the democratic character of America's public universities and added to their portfolio of activities both public service and eventually research. The Morrill Act put federal largess at the disposal of every state government, and thereby helped to develop a whole new network of institutions with a popular and practical orientation, the land-grant colleges, which today enrolls more than 20% of all American college students.

Excerpts from the Morrill Act of 1862:

An Act donating Public Lands to the several States and Territories that may provide Colleges for the Benefit of Agriculture and the Mechanic Arts.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there be granted to the several States, for the purpose hereinafter mentioned, an amount of public land, to be apportioned to each State a quantity equal to thirty thousand acres for each senator and representative in Congress to which the States are

respectively entitled by the apportionment under the census of 1860.



Senator Justin Morrill (Vermont)

And be it further enacted, That all moneys derived from the sale of the lands aforesaid by the States to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per centum upon the par value of said stocks; and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished, … and the interest of which shall be inviolably appropriated, by each State which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes on the several pursuits and professions in life.

Justin Smith Morrill (April 14, 1810 – December 28, 1898) was a Representative (1855–1867) and a Senator (1867–1898) from Vermont, most widely remembered today for the Morrill Land-Grant Colleges Act that established federal funding for establishing many of the United States' public colleges and universities. Intellectually and structurally, Morrill was perfectly placed to serve as a conduit for two social movements to translate into law. The first movement sought to make a liberal arts education available to the sons and daughters of agricultural and industrial workers; the second, to replace the traditional classical curriculum, consisting of Latin, Greek, and Bible Studies, with a modern agricultural and technical education.

In 1857 Morrill introduced a land grant bill in Congress; the bill passed in 1859 only to be vetoed by President James Buchanan. The land grant bill sought to award federal land to each state, with the amount of land depending on the size of their Congressional delegation; the states would then sell the land and use the proceeds to establish public colleges for agriculture and the mechanic arts. In 1861 Morrill authored another bill, and this time he secured its passage by increasing to 30,000 acres the grant for each senator and representative and adding the requirement that the land grant colleges teach



tablished a complex partnership in which the federal government provided incentives for each state to sell distant Western lands, with the states being obliged to use the proceeds to fund advanced instructional programs. The program began in 1862 with a generous incentive system whereby each state was allotted by formula a portion of federal lands commensurate with then umber of its congressional representatives. The state government was then required to dedicate land sale proceeds to establishing collegiate programs in such "useful arts" as agriculture, mechanics, mining, and military instruction–hence the "A&M" in the name of many land-grant colleges. (Thelin)



Through the Morrill Act each state was given 30,000 acres of public lands in the west for each senator and representative. Although 10% of the proceeds from sale of the land could be used for the purchase of a site for a new college "where the leading object shall be, without excluding other scientific or classical studies, to teach such branches of learning as are related to agriculture and the mechanic arts", the remainder of the fund had to be maintained as a perpetual endowment. The follow-on Hatch Act of 1887 provided further federal funds for the creation of agricultural experiment stations,

which were instrumental in modernizing American agriculture.

It should be noted that the actual motivation behind the Morrill Act had more to do with devising an effective and popular way to dispose of federal lands in the new western territories that supporting American higher education. In fact, the initial effort to pass the act encountered strong resistance from many members of Congress worried about whether it favored some sections over others, whether the western states would suffer from the use of their lands to endow eastern colleges, and it was only after the secession of the southern states that triggered the Civil War that it was passed and Lincoln signed it. This pattern in which federal support of higher education was really provided to accomplish other objectives became a frequent pattern over the years, e.g., the G.I. Bill that was really intended to avoid a job crisis with returning veterans from WWII or the government-university research partnership that was aimed at winning the Cold War.

Whatever the original motivation, the states responded rapidly to the federal largesse and eventually 69 American colleges were being supported by this legislation. Several states created "A&M" colleges. Others turned over to existing state universities both the land-grant endowment and the responsibility of serving agricultural and the mechanic arts. In Connecticut the Sheffield Scientific School of Yale became the land-grant college. Dartmouth and MIT also received land grants. Both Indiana and New York combined used the opportunity for land grant to seek a major gift to found a new institution–in the case of Indiana, the $100,000 of John Purdue; in the case of New York, the $500,000 of Ezra Cornell. Some states even used the land-grant funds to create a liberal arts college such as California where the College of Oakland was transformed into the University of California, with a curriculum that closely approximated the offerings of a New England college.

The land-grant college movement was a uniquely American approach to meeting the needs of a growing nation for both a more democratic and utilitarian approach to higher education, providing both college opportunities for the working class while addressing the technology needs of agriculture and industry. Although Michigan and Wisconsin had already established the importance of the state university prior to the Civil War, the land-grant act would soon have great impact on the nation stimulating the appearance of state colleges across the nation that would eventually challenge the influence of the eastern colonial colleges. In a very real sense they achieved both the Jeffersonian goals of popular learning necessary for a democratic society and the practical utility necessary for a rapidly industrializing nation.

From College to University



It is important to recognize that the collegiate approach to education was decidedly not intellectual. Rather it was based upon the Oxbridge model of a classical education for elite, the future leaders of the clergy, government, and in the case of the American colonies, commerce. Furthermore those comprising the faculties of the 19th century colleges were not scholars but rather tutors. It was once suggested that the perfect education would have a student sitting on one end of a log conversing with the noted Williams professor (and president) Mark Hopkins on the other end. Yet Hopkins himself once stated: "You read books. I don't read books, in fact I never did read any books." (Rudolph) Yale argued in its report of 1828 that the purpose of a college education was not to produce learned men but instead provide "the discipline and furniture of the mind". As Noah Porter, president of Yale, asserted, "The college course is preeminently designed to give power to acquire and to think, rather than to impact special knowledge or special abstract subjects. College is a system of mental gymnastics, essentially nothing else." (Veysey)

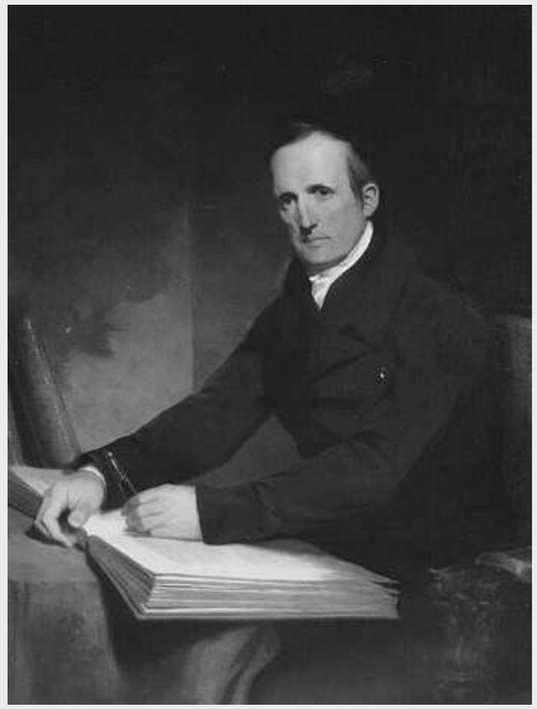
Yet by mid-century the classical curriculum adopted by the colleges centered on Greek and Latin, rhetoric, and moral philosophy began to be challenged by the education needs of an emerging commercial and industrial nation. Beyond this utilitarian objective, there were also concerns expressed by American scholars returning from Europe about the growing influence of the German research universities where the faculty's

involvement in original scholarship had been elevated to a priority comparable to that of instruction.

There were several efforts during the early 18th century to move beyond the collegiate model to create a true university in the European sense. Benjamin Franklin launched a more utilitarian model in his Philadelphia Academy (later the University of Pennsylvania). Thomas Jefferson based his design of the University of Virginia on the principles of the Enlightenment, on freedom, similar in spirit to the emerging themes of Lehrfreiheit and Lernfreiheit of the German universities. Wayland also introduced many of the themes of the German universities during his leadership at Brown. But the most interesting attempt to build a true university in America–and a truly public university, at that–occurred in mid-century in Michigan, with the arrival of Henry Tappan as the first president of the University of Michigan.

The Yale Report of 1828

By The end of the Civil War the traditional philosophy of higher education, whose watchword was the much repeated phrase "mental discipline", had already been under long and gathering attack. Noah Porter of Yale asserted "The college course is preeminently designed to give power to acquire and to think, rather than to impact special knowledge or special discipline." This mean that the curriculum must inevitably demand hard work in abstract subjects. College, it could be affirmed as late as 1884, "is a system of mental gymnastics, essentially nothing else".



Yale's Jeremiah Day

Yale President Jeremiah Day is best known for his defense of the classical curriculum in the Yale Report of 1828. The scheme of instruction faced by the new student was almost entirely fixed. For the first three years he studied mainly Greek, Latin, and mathematics (albegra, geometry, and spherical trigonometry). Senior year was devoted to metaphysics and ethics and a small amount of composition and belles-lettres. The curriculum and the way it was taught were the subject of a great deal of adverse comment.

The Yale Report of 1828 stressed that "The two great points to be gained in intellectual culture are the discipline and the furniture of the mind; expanding its powers and storing with knowledge. The former of these is, perhaps, the more important of the two. A command object, therefore, in a collegiate course should be to call into daily and vigorous exercise the faculties of the students."Yale opposed shortening the course of instruction, making it more practical, dropping the dead

languages, or modeling Yale on European universities. Day stressed for those who thought the liberal arts prepared a an for nothing that a man at college was taught how to learn: the college graduate has merely begun his education, not completed it; he has laid a foundation, not finished the structure.



As Rudolph has pointed out, "The Yale Report was a magnificent assertion of the humanist tradition and therefore eventually of unquestionable important in liberating the American college from an excessive religious orientation. In the meantime, however, the report gave a convincing defensive weapon to people who wanted the colleges to stay as they were. Behind it the American college curriculum remained almost immovable until after the Civil War."

During this period of rapid growth and experimentation in American higher education, the most conservative of colonial colleges, Yale, released a report in 1828 reaffirming the more traditional–certainly humanist and perhaps even scholastic–themes of the collegiate approach to learning. Yale argued the importance of the classical course. "It is desirable that the new men of wealth and influence being created by American abundance should be men of superior education, of large and liberal views, of those solid and elegant attainments, which will raise them to a higher education." To lay the foundation of a superior education, "The two great points to be gained in intellectual culture are the discipline and the furniture of the mind: expanding its powers, and storing it with knowledge. The former of these is, perhaps, the more important of the two. A commanding object, therefore, in a collegiate course, should be to call into daily and vigorous exercise the faculties of the student." While the Yale Report of 1828 liberated the American college from religious orientation, it also was to trap Yale in a conservative approach to collegiate education for most of the 19th century, while many other colleges were to transform themselves into true universities. (Laurence R. Veysey, "The Emergence of the American University", University of Chicago Press, 1965)

Humanism and Scholasticism in the Colonial Colleges

Although the colonial colleges were creatures of the Renaissance and therefore cherished the humanistic ideal of classical scholarship, their instruction was anchored to medieval scholasticism. The colonial curriculum was the proper amalgam of the medieval arts and sciences and of Renaissance interest in the study of literature and belles-lettres. Aristotle's three philosophies—natural, moral, and metal—entered the medieval universities.

If Latin was the language of the Reformation, Greek and ancient Greece were the discovery of the Renaissance and the curriculum of the colonial college necessarily made room for both. Beside the Reformation ideal of the learned clergyman was placed the Renaissance ideal of the gentleman and scholar.

During the first year Latin, Greek, logic, Hebrew, and rhetoric were the staples of the curriculum. During the second year logic, Greek, and Hebrew were continued, and a beginning was made on natural philosophy. In the third year there was added metaphysics and moral philosophy, and in the fourth year a review in Latin, Greek, logic, and natural philosophy. (Veysey)

Faculty Pay

President Eliot turned the low pay of professors into a national virtue:

"The poverty of scholars is of inestimable worth in this money-getting nation. It maintains the true standards of virtue and honor. The poor friars, not the bishops, save the Church. The poor scholars and preachers of duty defend the modern community against its own material prosperity. Luxury and learning are ill bed-fellows."

The meaning for the American college and for American life in general of this pattern of faculty exploitation was profound. It permitted the wealthy benefactor to neglect the endowment of faculty salaries while at the same time he indulged his desire for self-monumentation in buildings and bestowed scholarships to indulge his romantic fondness for poor promising boys.

Wayland observed: "We have produced an article for which the demand is diminishing. We sell it at less than cost, and the deficiency is made up by charity. We give it away, and still the demand diminishes. It is not time to inquire whether we cannot furnish an article for which the demand will be, at least, somewhat more remunerative?" (Frederick Rudolph, The American College and University, The University of Georgia Press, Athens, 1962, Ch 9)

A Case Study Redux
Michigan Again



The University of Michigan, circa 1910

Amid this swirl of conflicting views over the future shape of American higher education, Henry Philip Tappan arrived as president of the University of Michigan in 1852, determined to build a university very different from those characterizing the colonial colleges of 19th century America. Tappan was strongly influenced by European leaders such as Wilhelm von Humboldt, who stressed the importance of combining specialized research with humanistic teaching to define the intellectual structure of the university. Tappan articulated a vision of the university as a capstone of civilization, a repository for the accumulated knowledge of mankind, and a home for scholars dedicated to the expansion of human understanding. In his words, "a university is the highest possible form of an institution of learning. It embraces every branch of knowledge and all possible means of making new investigations and thus advancing knowledge."

In Tappan's view, the United States had no true universities, at least in the European sense. With the University of Michigan's founding heritage from both the French and Prussian systems, he believed he could build such an institution in the frontier state of Michigan. He envisioned a new form of American university: "We shall have no more acute distinctions drawn between scholastic and practical education; for, it will be seen that all true education is practical, and that practice without education is little worth; and then there will be dignity, grace, and a resistless charm about scholarship and the scholar."

And build it, he did, attracting distinguished scholars to the faculty such as Andrew D. White and Charles Kendall Adams and placing an emphasis on graduate study and research and investing in major research facilities. Among Michigan's firsts during his presidency, it built one of the three largest telescopes in the world for astronomical research, erected the first teaching laboratory for chemistry, taught the first courses in subjects such as meteorology, journalism, American literature, bacteriology, and forestry, and established the first professional schools in the west in medicine (1850), law (1854), and engineering (1854).



Henry Tappan

In his efforts to create "a university worthy of its name", Tappan proposed to separate off the boarding school role of American colleges to secondary schools or gymnasia similar to Prussia while elevating the university to a comprehensive institution where students could find any area of instruction they desired. Of particular interest was a University Course discarding the tutorial or recitation format of the college and instead providing "the highest knowledge" through lectures to students with access to libraries and laboratories–an early vision of the American graduate school.

Yet frontier Michigan was a crude setting for Tappan's vision of the true university. Furthermore his determination and occasionally abrasive personality stirred up resistance (and plots for a coup) on the part of several on his faculty and Regents of the University. In 1863 the Board of Regents, probably unjustly, certainly foolishly–and inevitably–fired him." Although premature, Tappan's vision for Michigan in the 1850s and 1860s provided the first American model of a modern university. And through his leadership and influence, others would follow the early Michigan effort to successfully create a true university for America. Years later, Michigan's James Angell was to have the last word on the Tappan's experience: "Tappan was the largest figure of a man that ever appeared on the Michigan campus. And he was stung to death by gnats!"

By the mid-19th century, higher education in America had evolved beyond the collegiate model imported from Oxbridge by the colonies. The state universities were empowered by the Land-Grant Acts both to provide educational opportunities to the middle class while developing more utilitarian programs capable of serving an industrial society. Yet, as Michigan's Henry Tappan suggested, a rapidly growing and democratic nation need something further: an institution capable of generating new knowledge through the scholarship of its faculty and students, by adapting the research university paradigm evolving in Europe to the American experience.



A map showing the early Michigan campus in Ann Arbor at the time of Henry Tappan's arrival in 1852.

Hence it is time to return once again to the evolution of higher education in Europe.

Henry Philip Tappan (1852–63)

Henry Philip Tappan, Michigan's first president, brought to Ann Arbor a vision of building a true university that would not only conduct instruction and advanced scholarship but also respond to popular needs. He aimed to develop an institution that would cultivate the originality and genius of the talented few seeking knowledge beyond the traditional curriculum, along with a graduate school in which diligent and responsible students could pursue their studies and research under the eye of learned scholars in an environment of enormous resources in books, laboratories, and museums. Although his expectation that university professors should engage in research as well as teaching disturbed some, it also allowed him to attract leading scholars and take the first steps toward building a "true university" in the European sense.

Yet Tappan also had an elitist streak. His vision, personality, and European pretensions eventually began to rub the frontier culture of Michigan the wrong way, with one newspaper describing him as "the most completely foreignized specimen of an abnormal Yankee we have ever seen."19 Although Tappan's first board of regents strongly supported his vision, they were replaced in 1856 by a new board that, almost immediately after its election, began to undermine Tappan's leadership, by using a committee structure to weaken his executive powers. The board's opposition to Tappan was joined by several faculty members strongly resistant to change, along with the powerful editor of a Detroit newspaper. Eventually, the convergence of these hostile forces emboldened the regents to fire Tappan in 1863, ironically during a secret session soon after the regents' defeat in the statewide election. The lame-duck board named as his successor Erastus Haven, a former faculty member who had long sought the position.

Despite this ignominious end to his tenure by a hostile board of regents, Tappan is viewed today as one of the most important early American university leaders, not only shaping the University of Michigan, but influencing all of higher education

and defining the early nature of the American research university. Years later, President James Angell was to have the last word on the sordid incident: “Tappan was the largest figure of a man that ever appeared on the Michigan campus. And he was stung to death by gnats!” (Peckham)



Henry Frieze

Henry Simmons Frieze (1869–71)

The regents asked Henry Frieze, professor of Latin language and literature, to serve as president pro tempore until Erastus Haven’s successor could be selected. Frieze would later serve in the interim role on two other occasions, when his successor, James Angell, went on overseas assignments. Despite his brief tenure, Frieze accomplished much, quietly moving to admit women; obtaining the funds to build University Hall, the dominant academic building of the nineteenth-century campus; and establishing the University Musical Society, the center of cultural life in the university and Ann Arbor to this day.

Perhaps most significant, Frieze created the American secondary school systems, the high schools, as we know them today. Prior to the Civil War, most public education occurred at the primary level, and colleges and universities were obliged to create associated academies to prepare students for college work. Frieze began the practice of certifying select Michigan public schools as capable of offering respectable college preparation, thereby freeing the university from preparatory commitments and stimulating the schools of the state to extend their responsibilities into secondary education. This device unleashed the high school movement in the Midwest and later the nation, not only enabling the state universities to cultivate scholarly aspirations, but reshaping public education into clearly differentiated elementary and secondary schools.21 James Angell put Frieze’s contributions well: “No man except President Tappan has done so much to give to the university its present form and character. No one was ever more devoted to the interests of this institution or cherished a more abiding hope for its permanent prosperity and usefulness.” (Peckham)



Andrew Dickson White

Andrew Dickson White

"Perhaps the most significant of the university builders in the United States", spent a decade at Michigan absorbing Tappan's ideals before becoming the first president of Cornell. White's student and successor at Michigan, Charles Adams, followed him as president of Cornell and then was one of two presidents who transformed Wisconsin into a research university. (The other was another Michigan graduate, Thomas Chamberlain.) This is not even to mention Michigan's most celebrated president, James B. Angell. Adding only three names, Wayland of Brown, Eliot of Harvard, and Gilman of Johns Hopkins, to this roster of Michigan men completes the list of key leaders of American university development in the 1850s to the 1880s. (Turner, 1988)



James Burrill Angell

College Presidents

Early college presidents were expected to provide academic leadership. In some 19th century institutions, the president was not only the most distinguished scholar, but the only scholar. The intellectual influence of presidents on the faculty, the governing board, and the students was profound, as suggested by a Michigan student's admiration of President Tappan: "He was an immense personality. It was a liberal education even for the stupid to be slightly acquainted with him." The college president was "by all odds the greatest single educative force encountered by the students, the dominant influence, the greatest single force in college life."

James B. Angell, dynamic and effective president of Michigan, remarked of the age of colleges in 1895: "Almost any clergyman who could make a good appearance in the pulpit of his denomination and teach from text-books the elements of intel-

GALLERY 3.13 Michigan in the 19th century



The University along State Street (1870)

1 of 11

lectual and moral philosophy could fill the presidency acceptably." (Peckham)

The Yale President must be a Yale man. He must be a person of character with religious convictions. He must be a scholar of international reputation with deep respect for science if he is a humanist and who loves the arts if he is a scientist. Brooks Mather Kelley, New Haven, Yale University Press, 1974

But he was on his way to becoming: "A mere administrator, the business manager of a great plant, a lobbyist often at the general assembly of the state, a peripatetic raiser of funds, an applauded lecturer before women's clubs and rotary clubs and boards of trade, a dignitary in gorgeous robes at intercollegiate functions, resplendent at commencement, an absentee for long periods from the college campus."

Rutherford B. Hayes, a member of the Ohio State Board, put it this way:

"We are looking for a man of fine appearance, of commanding presence, one who will impress the public; he must be a fine speaker at public assemblies; he must be a great scholar and a great teacher; he must be a preacher, also, as some think; he must be a man of winning manners; he must have tact so that he can get along with and govern the faculty; he must be popular with the students; he must also be a man of business training, a man of affairs; he must be a great administrator."

He went on to add to his colleagues on the Ohio State board, "Gentlemen, there is no such man."

In fact, today many regard the contemporary university president as simply "someone who lives in a large house and begs for a living"...

CHAPTER 4

Meanwhile, Back on the Continent

"The university instructor is no longer the teacher, and the student no longer the taught; the latter rather researches, and the professor guides it. Education at the university puts one in a position to grasp the unity of academic knowledge (Wissenschaft) and to bring it forth, thus demands creative powers. For insight into academic knowledge as such is a creation, even if a subordinate one. To the university is reserved that which one can discover in and through oneself: insight into pure academic knowledge. For this act of self, freedom is necessary, and solitude helpful. The relation between teacher and student thus becomes wholly different from before (at school). The former is not there for the latter; rather both are there for knowledge."(von Humboldt)



Reformation and Evolution (1600-1700)



Ancient courtyard of the University of Salamaca

From their early roots in Bologna and Paris, universities began to develop in different forms in different countries and cultures. The University of Bologna provided the template upon which most universities in southern Europe were modeled, located in major cities, strongly influenced by the Church, and still adhering to a classical curriculum based on the traditional four faculties: theology, jurisprudence, medicine, and the arts and philosophy. This was an open system of higher education in the sense that students attended lectures individually and completed a course of study on their own, while being responsibility for finding board and lodging in the surrounding city. In contrast, the university models provided by Paris and Oxford and prevalent in France, England, and Spain, were closed systems based on colleges in which students lived together on campus or in university towns under close supervision. The daily needs of the students such as board and lodging were met by the institution.

Catholic universities were the institutional hub of higher education even during much of the Reformation since two-thirds of European universities were in Catholic territory. The Jesuit order had particular influence at many of these institutions, centering much of education on collegiate structures and utilizing celibate Jesuit instructors, much like the English tutorial college system. By 1700 Jesuits had more than 700 colleges. However the Jesuit universities discarded the traditional mechanisms of appointment by faculty and pioneered the bureaucratic notion of meritocracy in academia that were increas-

ingly centered on the faculties of the four classical disciplines. Jesuit influence was focused on theology, arts, and philosophy, leaving law and medicine to secular authorities. (Ruegg II)

In Spain the three great universities, Salamanca, Alcala (later moved to Madrid), and Valladoid were created on the Bologna model but were constrained by the counter-Reformation during the early years of the Enlightenment. Lisbon and Coimbra were are first strongly supported by the royal families of Portugal, but in 1537 the University of Lisbon was dissolved and studies were centralized in Coimbra where the king invested heavily in new faculty.

As the Reformation swept across Europe, the Jesuits were eventually pushed out of France and Spain and temporarily dissolved by the Pope in the late 18th century. This allowed a lively intellectual atmosphere to flourish once again in the universities of southern Europe as they devoted themselves more completely to the service of the state rather than the church. Perhaps because humanism had not really transformed them as it did in the north, the Enlightenment had greater influence on their evolution.

The Jesuit role

The Jesuits once loomed largely over academic Europe. By 1700 they had more than 700 colleges. They were kicked out of France in 1762, Spain in 167, and temporarily abolished by the pope in 1773. Where they existed they eventually wrested control of the theology, arts, and philosophy faculties. They did not do law or medicine.

Like the English, the Jesuits centered their academic system on the college. Like English college fellows, Jesuit instructors remained celibate and clerical in habits. They pioneered the bureaucratic notion of meritocracy in academia. The Jesuit colleges and universities exhibited a rather strange mixture of the collegiate and professorial university.

Along with their meritocracy, the extreme mobility of Jesuits also stands out. Jesuits as academics showed great turnover, with a stay of 5 years per institution typical. But the Jesuits rejected what the German state ministries eventually forced on secular academics: disciplinary specialization. Jesuit professors instead usually rotated through the disciplines.

Catholic universities from the high Middle Ages were the institutional hub of the European university system since two-thirds were in Catholic territory. The French universities of which Paris, Montpellier, and Orleans were among the most ancient, enjoyed a considerable reputation even in the late Middle Ages. Initially rather hesitantly disposed towards humanism, the French universities only gradually opened themselves up to its influence. Theology, strongly scholastic in character in France, was only marginally affected by humanism, however, and ultimately remained untouched by it, thus encouraging the conservatism of the universities. Yet the Jesuits

in France were as difficult to check as in other Catholic countries. The decline of the universities during the religious wars could never entirely be made good. Henceforth they remained closely tied to the Catholic interests of the state, serving increasingly as mere preparatory schools for those wishing to following state and church careers.

But the pioneer universities of the early modern period–Geneva, Leiden, Halle, Gottingen, Erlangen, Edinburg, Glasgow, and Konigsberg–appear at first to be mainly the Protestant ones; but perhaps not after closer scrutiny. In the 18th century a lively intellectual atmosphere flourished again in the southern universities because they devoted themselves more completely to the service of the state. It was in southern Europe, too that the Enlightenment most influenced reform in the universities, perhaps because humanism had not really transformed tem as it did in the north, and they were still awaiting, as it were, a new vocation. This was given to them by the centralizing state.

The once successful and intellectually prominent Jesuit order had in the meantime become so backward because of the strict observance by the Jesuits of the 1599 *ratio studiorum*, that its dissolution in 1772 was generally greeted as a liberation pointing towards modern possibilities of scientific education. (William Clark,"Academic Charisma and the Origins of the Research University, University of Chicago Press, Chicago, 2006D)

France

In northern Europe the University of Paris provided the model of faculty-centered universities, which took three different forms. French universities continued to be organized in the University of Paris model of a university of teachers, with faculties awarding degrees in the four classical disciplines: theology, law, medicine, and the arts. England adopted instead a collegiate or tutorial model based on Oxford in which teaching was decentralized among numerous learning communities or colleges. There was still an organization of faculties, but organized along college lines rather than academic disciplines. Much of the rest of northern Europe, including Scotland and the German lands, adopted a hybrid model combining the collegiate system for general instruction and a centrally organized university faculty model for the disciplines.

The French universities, of which Paris, Montpellier, and Orleans were the most ancient, were highly regarded centers of learning during the late Middle Ages. While attendance at the University of Paris provided a good career recommendation, other French universities remained rather small institutions, lacking social prestige. Although initially rather hesitantly disposed toward humanism, the French universities gradually opened themselves up to its influence, although theology continued to be strongly scholastic in character. The Jesuits in France were as difficult to control as in other Catholic countries, and the universities remained closely tied to the Catho-

lic interests of the state, serving increasingly as preparatory schools for those wishing to follow state and church careers. During the 17th century, the French universities, whether organized as collection of colleges or faculties, began to be challenged by new academic forms, the ecoles, structured as academies and technical schools.

England

Higher education in England remained confined to the two medieval universities, Oxford and Cambridge, based on a strong college system in which college tutors and their tutorials performed a style of private, intimate teaching, focusing more on perfecting mental discipline that teaching useful content. Its purpose was not professionalization, as stressed by the universities of continental Europe, but rather education aimed at producing gentlemen for the ruling class.

Students were admitted to and identified with their colleges, not with a discipline or the university more broadly. The power rested in the hands of the college masters, tutors, fellows, and later the dons, while the professors were largely pushed aside, with pay "typically too meager to support intelligent life". (Clark) Later in the 19th century an effort would be made to create scholarly profession at Oxbridge, envisioning a new hierarchy in which professors would preside over the university. But this was defeated by the power of the status quo, and the professoriate would remain marginalized until well into the 20th century.

"Until the 19th century England had only two universities, Oxford and Cambridge. While Oxbridge possesses a long academic tradition, it is an inglorious one. It has a wildly inflated reputation, essentially undeserved at least between 1500 and 1900. Its reputation comes from architecture and tourists. "Like Mad Ludwig's royal Bavarian castles, modern Oxbridge's fame grew from the tourist industry, and now is a great beneficiary of the nostalgia induced by our modern Germanic regime." Observed one visitor, "In general I must report about Cambridge that the place itself is not so big and is as poor as a small village…and if the fine colleges were not in such abundance here, it would be the most miserable place in the world." Oxford and Cambridge embodied a paradise lost." (Clark 2005)

Germany

There was brief period of experimentation with a collegiate system at some German universities. Excepting matters of size, an early German university resembled an English university, with students studying for a BA and living in colleges or dormitories. However this collegiate structure disappeared in favor of a faculty-based organization during the Renaissance and Reformation, followed by the emergence of the *gymnasium academicum*, a new humanistic secondary school that largely supplanted the BA curriculum. In contrast to the Oxbridge, where the power rested with the tutors, fellows, and

dons of the college rather than the professors of the university, the real power at German universities was vested in the faculties and their organizations such as the academic senate.

By the end of the 18th century there were 143 universities in Europe, roughly one for each one million people. The countries rich in universities were either those of an ancient culture (Italy and France) or those in which scientific development began to appear (Scotland, the German lands). In countries still dominated by a strong crown rather than a civil government, such as England and Portugal, there were few universities. It is also striking that while the early universities were first located in major cities (except for Oxbridge), most of the large and expanding cities of the early modern period–London, Amsterdam, Brussels, Berlin, Munich, Marseille, Lyons, Madrid, Lisbon, and Warsaw–had no university and remained without one for many years.

Section 2

Enlightenment and Revolution



Scholars of the Enlightenment (e.g., Descartes, Moliere, Voltaire...)

Key in the next stage of evolution of the university was the intellectual movement of the Enlightenment, which appeared in the early 18th century as scholars began to oppose the absolute rule of monarchs ("absolutism") and instead emphasize the equality of all individuals. Although the Enlightenment idealized the concepts of democracy and republic from Greek and Roman civilizations, scholars such as John Locke interpreted these as implying that citizens held certain natural rights such as life, liberty, and property, and that governments derived their existence from the consent of the government and their duty to protect these rights. If a government did not protect these individual rights, then the people had the right to overthrow it–a message that was soon heard both in the New World and in 18th century France.

While the spirit of the Enlightenment, with its stress on reason and individual liberties, was to transform the Renaissance university into faculty-centered institutions embracing the new role of generating new knowledge in addition to teaching the classical teachings, the revolutions triggered by the Age of Reason also became transforming events. Insufficient enlightenment, entrenched attitudes, and secluded intellectualism were enemies of the university in France, England, and Italy. In France during the 18th century universities ceased to have any market influence on the intellectual life of French society and the course of enlightened discussion. They began to be challenged by new educational forms such academies and technical schools. The once successful and intellectual promi-

nent Jesuit order had became so backward that its dissolution in 1772 was greeted as liberation.

However in other ways scholarship became nationalized as nations established their own academies and learning discarded Latin to be provided in native languages. Universities became secularized. In France during the 18th century universities ceased to have any marked influence on the intellectual life of French society and the course of enlightened discussion. They disappeared after the Revolution and reorganization by Napolean. The universities retained their central position in the intellectual life of Germany and the Holy Roman Empire. The same was true for the Scottish universities, whose enlightenment character influenced American colleges. The English universities largely held to their old traditions.

This extraordinary expansion is all the more astonishing because the replacement of universities by specialized and professional institutions coincided with the dominant trend in the Enlightenment to orientate higher education towards practical knowledge and useful careers for the public good. Indeed the 200 universities were surrounded by 300 institutions in specialized fields.

At the beginning of the 19th century two new university models appeared which opened the way to a fundamental reform of the traditional university. The first was the French model of special colleges subjected to severe, often military, discipline, strictly organized and controlled by an enlightened despotism that governed to the last detail the curriculum, the conformity of views held concerning official doctrines, and even personal habits. This model came out of the Revolution and Napoleon (and before a bit). The French model remained in force under successive regimes until it was eroded b y the German model (although some believe it lasted until 1968).

The German model bears the name Humboldt University, named after Wilhelm von Humboldt who persuaded the King of Prussia to found a university in Berlin in 1810 built on the liberal ideas of Schleiemacher, who believed the function of the university was not to pass on recognized and directly useable knowledge but rather to demonstrate how this knowledge is discovered. The manner of study, the content of the teaching, and the relations of the university with authorities were to be characterized by “freedom. The role of the state was to protect the freedom of the university and appoint the professors.

Revolution

The Enlightenment created a strong movement for a general improvement in human life, which began in England and passed through France, providing the model for thought throughout the Continent. Yet it was first in the New World that the Enlightenment would first be realized as an empowering force, when the American Revolution awakened Europe to the possibility of a new and self-confident freedom. It led in the French Revolution to the realization of this critical passion

that looked towards the future. In 1803 the French Revolution officially abolished the entire old academic system and closed



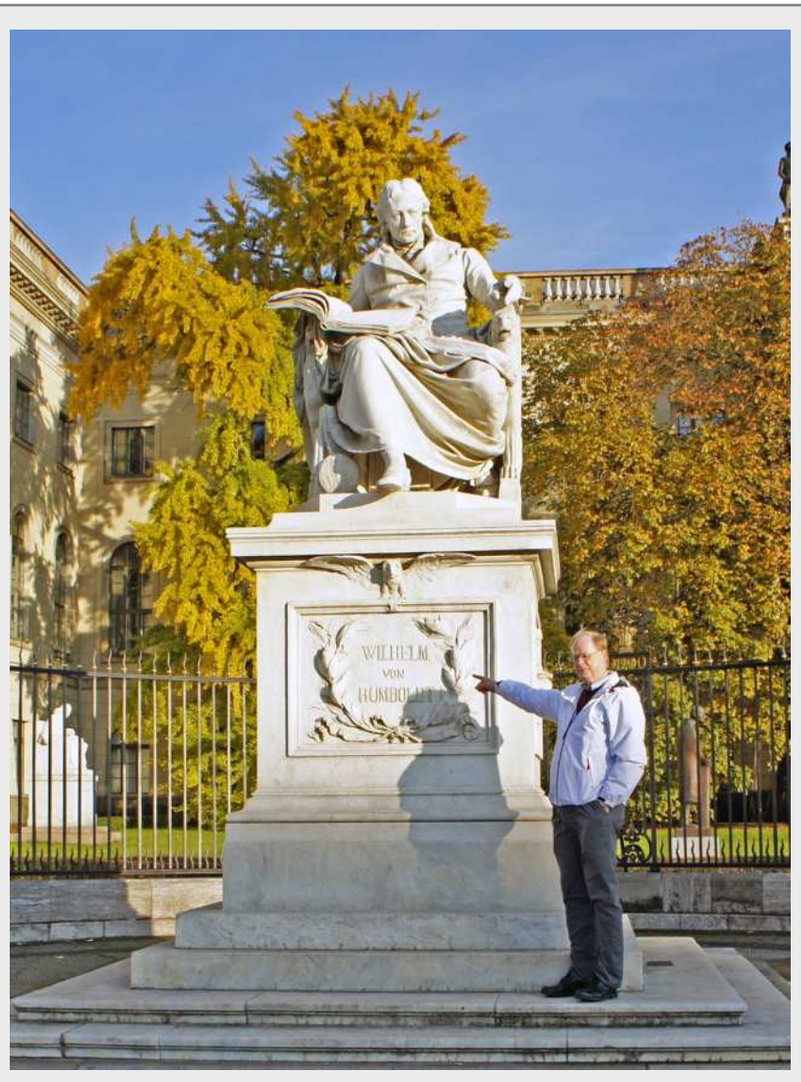
sovereigns, were organized in the same way and taught more or less the same branches of knowledge in the four classical faculties: theology, jurisprudence, medicine, and arts and philosophy. The structure and content of higher education, the cultures of faculty-originated and student-originated institutions, the contrasts between collegiate and university models, had largely converged. But the political upheavals of the French Revolution and Napoleon's conquests devastated the university landscape in Europe. In 1783 there were 143 universities in Europe; in 1815 there were only 83. The 24 French universities had been abolished. In Germany 18 of 34 universities had disappeared. In Spain only 10 of 25 remained.

The new French university model introduced by Napoleon stood in sharp contrast to both the collegiate and faculty-centered models then prevalent in 18th century Europe. It enabled government to impose severe discipline and control over the curriculum, the awarding of degrees, conformity of views, and student behavior. French university professors trained at the École Normale Supérieure, and much of their prestige depended on their schools' reputations. Even after the French universities were restored in 1895, the strong cen-

tralization of higher education in France and the influence of the Grand Ecoles would continue during the 20th century.

SECTION 3

Von Humboldt and the Birth of the Research University (1800-1900)



A statue in honor of Wilhelm von Humboldt at the Humboldt University of Berlin

Napoleon also applied the Universitie Imperiale system to his conquests across Europe. After Napoleon vanquished the Prussians in 1806, he closed the principal Prussian university, the University of Halle. Ironically, this action would create pressure to found a replacement institution in Berlin, which in turn would trigger the emergence of a new paradigm for the university that would eventually dominate Europe: the research university. This alternative approach, usually associated with the name of Wilhelm von Humboldt, was built on the belief that the function of the university was not to pass on recognized and directly useable knowledge but rather to demonstrate how this knowledge is discovered. The manner of study, the content of the teaching, and the relation's of the university with authorities were to be characterized by freedom. In fact, this model reversed the role of the state in the French approach by charging it to protect the freedom of the university. In the long term this permitted the removal of the state as a barrier to academic freedom. The success of this model is provided by the experience of American universities, based upon academic freedom and corporate autonomy, and it stands in sharp contrast to the damage done to universities by repressive regimes based upon totalitarian ideologies such as communism, fascism, and national socialism.

Humboldt argued that, unlike the new French Ecoles, the envisaged institution in Berlin must include all the traditional disciplines. He rejected both the medieval structure of the university and the French model of professional colleges, arguing

instead for the importance of not simply conveying knowledge but actually generating research as a responsibility of the faculty, thereby laying the foundations for the modern research university. Humboldt argued that one must always treat academic knowledge as something being sought, as a task never perfected. Such knowledge formed no mere collection of aggregate. It was something organic and reaching into the depths.

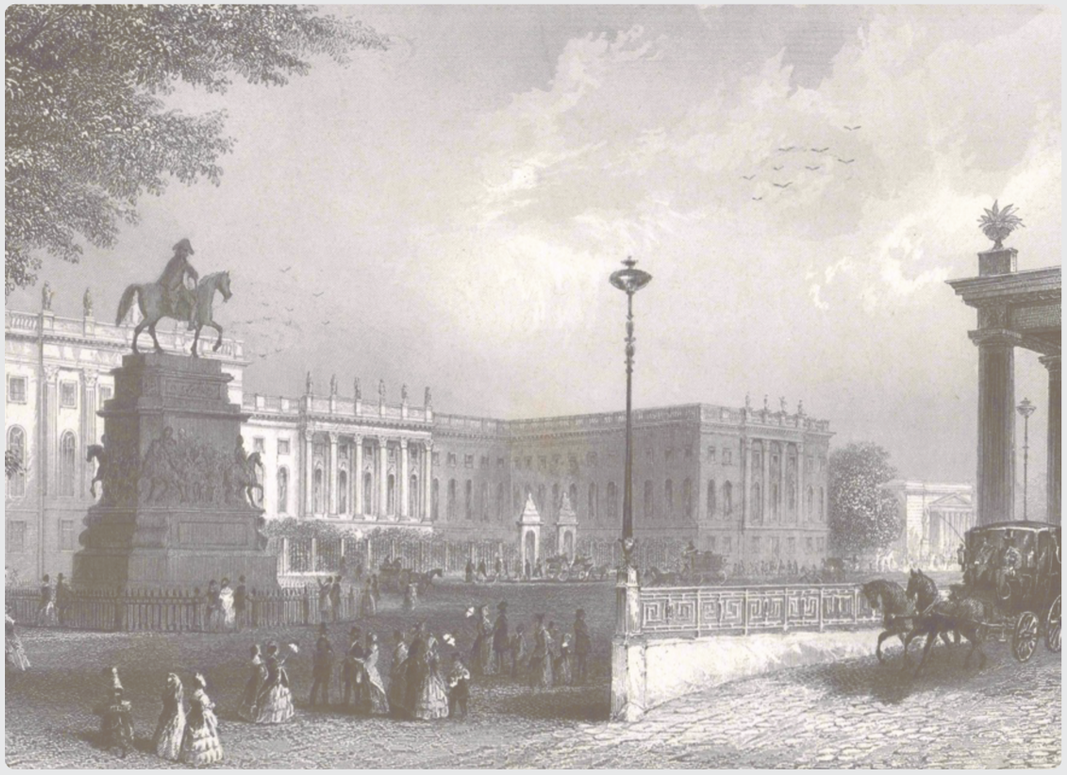
"The university instructor is no longer the teacher, and the student no longer the taught; the latter rather researches, and the professor guides it. Education at the university puts one in a position to grasp the unity of academic knowledge (Wissenschaft) and to bring it forth, thus demands creative powers. For insight into academic knowledge as such is a creation, even if a subordinate one. To the university is reserved that which one can discover in and through oneself: insight into pure academic knowledge. For this act of self, freedom is necessary, and solitude helpful. The relation between teacher and student thus becomes wholly different from before (at school). The former is not there for the latter; rather both are there for knowledge." "Just as primary instruction makes the teacher possible, so he renders himself dispensable through schooling at the secondary level. The university teacher is thus no longer a teacher and the student is no longer a pupil. Instead the student conducts research on his own behalf and the professor supervises his research and supports him in it."



Wihelm von Humboldt

Wilhelm von Humboldt (22 June 1767 – 8 April 1835) was a German philosopher, government functionary, diplomat, and founder of the University of Berlin (now known as Humboldt University, after him and his brother, Alexander von Humboldt . He is especially remembered as a linguist who made important contributions to the philosophy of language and to the theory and practice of education. In particular, he is widely recognized as having been the architect of the Prussian education system which was used as a model for education systems in countries such as the United States and Japan. Humboldt was a philosopher of note and one of the boldest defenders of the liberties of the Enlightenment. As Prussian Minister of Education, Humboldt oversaw the system of Technische Hochschulen and Gymnasien. (William Clark,"Academic Charisma and the Origins of the Research University, University of Chicago Press, Chicago, 2006) (Walter Ruegg, "A History of the University in Europe", Volume III, Universities in the 19th and Early 20th Centuries (Cambridge University Press, 2004)

GALLERY 4.2 Humboldt University (Berlin)



The University of Berlin (1860)

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Humboldt's stress on the rights of individual freedom in the Enlightenment was an important aspect of the German university model. Both teaching and scholarship were based on competition and freedom. Furthermore Humboldt argued that both faculty members and students must always treat academic knowledge as something being sought, as a task never perfected. The resulting German universities were well positioned to take advantage of the rapid advances in science during the 19th and 20th centuries. According to Humboldt, the mission of the University of Berlin was to pursue knowledge for its own sake. More broadly, the German university system fostered professional, bureaucratically regulated scientific research performed in well-equipped laboratories, instead of the kind of research done by private and individual scholars in Great Britain and France. In this sense, then, the German system can be viewed as key to the development of the modern research university. The seminars and institutes offered a new principle of organization for the 19th century German university, refining the superstructure of the four medieval faculties. This had the greatest effect on the arts and philosophy (and sciences) faculty, which became an accumulation of seminars and institutes. The University of Gottingen was a major leader in the development of the seminar system. Like the professiorial chairs before them, the seminars helped transform corporate and collegial academic entities into bureau-

Most seminars were rather budgeted institutes. In the second half of the 19th century the diffusion of the research seminar on the Gottingen model–as a public institute, that is, a budgeted but nonendowed entity–would fragment the medical and arts and philosophy faculties and reorganize them at German universities. Seminars and chairs would evolve into separate budgeted bureaus of knowledge or, to give them the American name, academic departments in the making. (Ruegg III)

GALLERY 4.3 University of Gottingen



Market square in Gottingen

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To capture and certify the great achievements of the seminar system, a new degree was necessary, the doctor of philosophy, and a rite of passage for attaining that title, the doctoral dissertation. Actually there had been several efforts to elevate the lowly masters degree to that comparable to law and medicine. The humanists saw the bachelor's and master's curriculum, which just happened to exclude the humanists' subjects, as the embodiment of scholastic barbarism. Finally in 1752 the University of Gottingen was able to offer the doctor of philosophy. The degree finally began to spread, to Austria in 1786, Tubingen after 1803. In the U.S. the PhD first appeared in 1861 at Yale. In Britain a doctorate in arts and sciences first entered the University of London in 1860 and did not make it to Oxbridge until 1917.

The seminars, institutes, and doctoral dissertations became essential academic bases of the German research university. Universities such as Gottingen did not act much like a public corporation for the common good but rather more as a mercantile teaching academy of sciences, a site of research that assembled all branches of knowledge with the aim to attract foreign students. The aim was to bring in academics with sufficient reputations to attract students and, of course, the fees they would pay.

As the 19th century German universities rose in prominence throughout Europe and eventually to America. However as the paradigm spread, it would mutate into a form most suited to a particular region. For example, although Oxford and Cambridge would eventually accept the role of a professoriate engaged in original research, it continued to provide undergraduate education through the colleges and the tutorial system. As we will see, the American university would combine the German model of research and graduate education with a more utilitarian and democratic character capable of serving the needs of a growing industrial nation while underpinning

undergraduate education with a new concept of the classical curriculum including the arts, humanities, and sciences, i.e., the "liberal arts".

In summary, the key point is that the Germans opened the way to the modern research university by focusing the idea of the university on the freedom of scientific research, teaching, and study. Competing with the Napoleonic model of specialized schools directed by government, it opened the way for the victorious drive of the natural sciences. It also stimulated student movements in which the university was case in the role of an arsenal of political struggle in the fight for freedom. The struggle for liberty differed from country to country, but the underlying idea of freedom was everywhere, represented by those professors and other university graduates who desired to make the university a place in which this freedom could be exercised.

Humbolt University and Free University of Berlin

Humboldt University of Berlin was founded in 1810 by Wilhelm von Humboldt, and from 1828 until modern times known as Fredrich-Wilhelms-Universitat. It suffered greatly under first the Nazis (being the source of the 20,000 books burned by the Nazis in the Opernplatz in 1933. Then it ended up in the Soviet sector of Berlin after WWII, and they renamed it Humboldt University in honor of both Wilhelm and Alexander Humboldt in 1949. In response, a new university was formed in the American sector and named the Free University of Berlin (that later grew to over 66,000 students). Following the re-unification of Germany, both universities were coordinated, with faculty from West Germany largely replacing those at Humboldt University.



Free University of Berlin

From Church to State to Students



The close relationship between Crown and political nation under the Tudors made it possible for England to achieve a sense of a unified, early modern community. The English Renaissance, which as a broadly accepted movement only had its full impact after the Reformation, led among other things to a dramatic increase in university attendance. But Oxbridge's purpose was not professionalization but education to promote civil conversation of the gentleman. The intellectual emptiness of the English universities in the 18th century encouraged migration to more enlightened institutions such as the Scottish universities. Edinburgh took over from Leiden in the 18th century as a place of progressive, enlightened studies.

English academic practices have served as the major counterpart to those in Germany. Professors that were at the heart of the German system continued to have marginal status at Cambridge. Professorial pay remained typically too meager to support intelligent life. Oxbridge focused on perfecting mental discipline rather than generating knowledge. A royal commission in 1850 emphasis the need to create a scholarly profession at Oxbridge. It envisaged a new hierarchy in which college fellows and tutors would be at the bottom and mostly do what the coaches did. Fellows would be appointed only by merit and would no longer be a rung in the Church hierarch. Next in precedence would be the university lecturers. At the summit, in truly Germanic spirit, the august university professors would preside over the university. The Oxford establish-

ment opposed the German approach. The compromise followed the wishes of the tutors, leaving the colleges to remodel their own statutes, and put no professorate in charge of the university. It would take the entry of the PhD in the University of London in 1857 to drive change (although Oxford didn't give the degree until 1917).

After 1800 the increasing secularization of nations broke universities away from church control. Governments endeavored to play the role of a "teacher-state" imposing on teaching establishments a uniform educational system in line with their political aims. France after 1806 saw the establishment of a university monopoly, exclusive to the establishment of the Imperial University.

First was increasing financial dependence that would result in almost all European universities losing their financial independence. While the medieval universities had been endowed with assets (with Oxbridge as the most extreme example), these eroded throughout the subsequent centuries. Ironically, when Napoleon founded the Imperial University and granted it the monopoly of teaching he endowed it with the property of the pre-1789 universities along with university fees paid by secondary school publics and by students in the faculties that were managed by the universities. This "golden age" was followed by an "iron age" which say more state authority. Yet even as French government exerted more control over the university, it continued to provide total financing of the grandes ecoles. Oxford and Cambridge managed to retain their financial independence up to the late 19th century, but by then the University Grants Committee was providing roughly 34% of their support. The German universities by the local sovereigns or established churches, but this was not sufficient, hence requiring government support.

Hence aside from Oxbridge, all European universities gradually evolved toward government support. The financial independence originally granted to the universities disappeared with government support. This control was exercised by ministries of education appearing among most European governments which were given responsibility for university affairs. It was through these central administrations that the external authorities could influence education and research. They became responsible for the recruitment of teachers and appointments. Governments began to establish national standards, particularly in professions such as law and medicine. This control continued after WWI and was extended to the creation of non-university higher education institutions providing technical trailing.

Rising numbers of students brought new and more acute material and financial problems. Old infrastructures were generally insufficient and inadequate. Increased student populations required larger teaching staffs. Only the specialized schools of higher education (the Grand Ecoles of France, the Technische Hochschulen in Germany) to the extent they main-



tained their administrative autonomy, generally escaped the problems facing the overgrown universities.

Freedom from the arbitrary use of power as well as responsibility for their common causes had united students since the founding of the universities. But the emergence of student movements cannot be explained only by the students' commitment to greater freedom and more responsibility for their studies and university organization. It was also driven by political conditions. The students had to contend with very powerful adversaries. They formed national federations, followed by international student unions. This theme of solidarity in the student struggle for freedom and self-responsibility led to the freedom fighters (but also the degeneration into the totalitarian student organizations of Nazism). It also motivated some cities to relocated their universities, e.g., Florence to Pisa, Venice to Padua, Milan to Pavia.

In summary, the key thesis is that the Germans opened the way to the modern research university by focusing the idea of the university on the freedom of scientific research, teaching, and study. Competing with the Napoleonic model of specialized schools directed by government, it opened the way for the victorious drive of the natural sciences. It also stimulated student movements in which the university was case in the role of an arsenal of political struggle in the fight for freedom. The struggle for liberty differed from country to country, but the underlying idea of freedom was everywhere, represented by those professors and other university graduates who desired to make the university a place I which this freedom could be exercises. (Walter Ruegg, Ch 1 Themes, European University History III)

(JJD NOTE: Note how Michigan also demonstrates the importance of student movements to a nation!)

The 20th Century



Goethe Tower, The University of Frankfurt

Even as the German model of universities as knowledge-based rather than student-development-based institutions began to propagate through Europe, the demands of industrializing economies for better educated populations began to pressure nations to expand educational opportunities. Furthermore, the impact of science on professions such as medicine was demanding that apprenticeship learning be replaced by more rigorous university training. Here the primary constraints were both available educational resources, e.g., schools, colleges, and universities, and a cultural shift away from regarding higher education as appropriate only for the aristocratic or ruling class and expanding it to broader segment of the population, much as the land-grant act had done in America.

Great Britain continued to offer only a costly education to aristocrats for most of the 19th century, and it was not until the early 20th century that new universities such as the University of London opened higher education to the middle class. Universities first accepted women in the middle of the 19th century; however, women faced considerate difficulties. Lacking basic civil rights and facing strong prejudices against their capacity and right to be a part of the higher education system, women only slowly became a part of the university system. The influx of non-elite, non-aristocratic students into European universities presented challenges to the German model, because suddenly there existed a variety of students from dif-

ferent backgrounds and with different expectations, resulting in a less concretely Humboldtian university.

European university students in the 19th and 20th centuries were largely responsible for their own education. They gathered about university centers in large cities, responsible not only for their living situation but also for their education. Professors did not take attendance, the only exams occurred at the end of courses, and students chose their own courses of study. With new educational and political philosophies came changes in the role of religion in European universities. During the 18th century, most universities had a strong connection to the church, and both the appointment of teachers and the admission of students took into account the religious orientations of students. In the 19th century, religion ceased to be part of the "compulsory curriculum." New universities like the University of London were non-denominational, and by the end of World War I, the majority of universities throughout Europe were secular in nature.

As a consequence of the student freedom, Lernfreiheit, provided by the modern European university, and perhaps as well the important role played by the state in governing and funding higher education, student political activities aimed at influencing society became increasingly prevalent on university campuses during the 19th and 20th century. Such organized movements emerged in different regions at different moments, depending upon particular generational and social issues. Sometimes they were extremely effective in driving social change. At other times they were brutally repressed by authoritarian governments. Yet student engagement in broader social issues became an important force in contemporary society, frequently sensing social issues and generating protest movements long before more established political forces could react.

Until the mid-20th century, European universities primarily focused on educating only a small fraction of the population, usually those either from the wealthy classes or destined for leadership roles in government or the professions. Yet this would change dramatically in the late 20th century as it became increasingly apparent that forces such as globalization and technology were rapidly raising the educational requirements for workforce productivity and national prosperity and security.

Gallery 4.5 Contemporary European Universities



University of Barcelona

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SECTION 6

Higher Education in Today's Europe



The tensions among the massification, reputation, and public support of higher education in Europe.

Today our world has entered a period of rapid and profound economic, social, and political transformation based upon a emerging new system for creating wealth that depends upon the creation and application of new knowledge and hence upon educated people and their ideas. It has become increasingly apparent that the strength, prosperity, and welfare of a nation in a global knowledge economy will demand highly educated citizenry enabled by development of a strong system of tertiary education. It will also require institutions with the ability to discover new knowledge, develop innovative applications of these discoveries, and transfer them into the marketplace through entrepreneurial activities.

Yet the traditional institutions responsible for advanced education and research–colleges, universities, research institutes–are being challenged by the powerful forces characterizing the global economy: hypercompetitive markets, demographic change, increasing ethnic and cultural diversity, and disruptive technologies such as information, biological, and nanotechnologies. Markets characterized by the instantaneous flows of knowledge, capital, and work and unleashed by lowering trade barriers are creating global enterprises based upon business paradigms such as out-sourcing and off-shoring, a shift from public to private equity investment, and declining identification with or loyalty to national or regional interests. The populations of most developed nations in North America, Europe, and Asia are aging rapidly while developing nations in Asia, Africa, and Latin America are characterized by young

and growing populations. Today we see a serious imbalance between educational need and educational capacity–in a sense, many of our universities are in the wrong place, where populations are aging and perhaps even declining rather than young and growing, driving major population migration and all too frequently the clash of cultures and ethnicity. New technologies are evolving at an exponential pace, obliterating both historical constraints such as distance and political boundaries and enabling new paradigms for learning such as open educational resources, virtual organizations, and peer-to-peer learning networks that threaten traditional approaches to learning, innovation, and economic growth.

On a broader scale, the education investments demanded by the global knowledge economy are straining the economies of both developed and developing regions. Developing nations are overwhelmed by the higher education needs of expanding young populations at a time when even secondary education is only available to a small fraction of their populations. In the developed economies of Europe, the tax revenues that once supported university education only for a small elite are now being stretched thin as they are extended to fund higher education for a significant fraction of the population (i.e., massification). Yet their aging populations demand highest priority for public funding be given to health care, security, and tax relief, forcing higher education systems to become more highly dependent on the private sector (e.g., student fees, philanthropy, or intellectual property). More fundamentally, in a knowledge-driven economy, many governments are increasingly viewing higher education primarily as a private benefit to students and other patrons of the university rather than a public good benefiting all of society, shifting the value proposition from that of government responsibility for supporting the educational needs of a society to university responsibility for addressing the economic needs of government–an interesting reversal of traditional responsibilities and roles.

In many respects the challenges facing higher education in developed nations (e.g., OECD) are quite similar and perhaps incompatible: the need to dramatically broaden participation in higher education to build a competitive workforce (massification), to enhance the quality of both education and scholarship to compete in a knowledge-driven economy, and to reduce the relative burden on tax payers who face other public spending priorities such as health, retirement, and national security. All create strong pressures on universities to diversify their funding sources through mechanisms such as raising student fees, building relationships with industry, encouraging philanthropy, and expanding the market for educational services through adult education or international students.

Within this context, the opportunities afforded by globalization look quite significant. Current estimates suggest that the number of students seeking university degrees will roughly double over the next two decades to as high as 250 million, with most of this growth in the developing world. Some na-

tions such as Australia have already launched aggressive efforts to not only recruit fee-paying international students but to establish overseas campuses to generate additional resources, finding that as the proportion of these students rises above 15%, their institutions begin to exhibit a more global character not only in funding but also in governance and management.

Both national and institutional aspirations for quality also have acquired a global character with the appearance of numerous surveys (USN&WR, Shanghai Joao Tong, London Times) attempting to establish a world ranking of major universities. This has caused some consternation as established universities with long histories of educational excellence have fallen in the rankings. It is certainly the case that an over emphasis on such rankings can distract both institutions and governments from more fundamental roles and objectives. But it is also clear that the concerns about the competitive quality of higher education have stimulated initiatives such as the Bologna Process in Europe aimed at overcoming fragmentation, increasing cooperation and competition, increasing investment in both universities and research systems, preparing for demographic change (particularly aging populations), and encouraging innovation and risk-taking.

Global competition among universities has also raised an awareness of the need to provide both a greater degree of institutional autonomy to enable the agility, flexibility, and innovation required by today's fast-changing world as well as a more sophisticated and strategic framework for higher education systems. Key in the latter is the acceptance of the importance of mission differentiation, since the availability of limited resources will allow a small fraction of institutions to become globally competitive as comprehensive research institutions (with annual budgets typically in the range of $1 billion or more). A differentiated system of higher education helps to accomplish both the goals of massification and promoting quality, but assigns different roles in such efforts for various institutions. Enabled both by the continental scale and its decentralized nature, the United States has achieved the most diverse system, enabling it to focus significant public and private resources to create a small set (less than 100) of world-class research universities, while distributing the broader roles of mass education and public service among a highly diverse collection of public and private institutions, albeit with an inevitable tendency toward "mission creep". Although such strategic diversification is beginning to appear in Asia, it will be particularly difficult to achieve in Europe where the Humboldt tradition of universities still resists defining the role of a college or university as primarily teaching (as opposed to scholarship).

The Bologna Process

Europe has been slow to recognize that its integration is being hampered by the archaic structures of its universities, which

are, in the main government owned. Even top universities, like Oxford or the Sorbonne, are sometimes uncertain how to evaluate one another's diplomas. Key was meeting of education ministers from 29 European countries in Bologna in 1999. Developed a detailed plan to give credibility to their declaration. By 2010 Europe will adopt a common framework of degrees with clearly defined undergraduate and postgraduate levels, apply a Europe wide credits systems, develop quality controls and eliminate obstacles to students and teachers changing schools. Although there has been some local resistance, most universities recognize that the Bologna Process is unstoppable and are participating in discussions. Universities in Eastern Europe have embraced the initiative as a map to modernization.

Europe has chosen to utilize the Bologna Process (and related programs such as Erasmus, Socrates, and the European Science Area) to enhance cooperation and competition among institutions, stimulate greater mobility of students and faculty, and achieve greater diversification enabling the focus of sufficient resources on a subset of institutions to achieve world-class quality. While Russia has accepted much of the Bologna philosophy, it also faces the challenge of merging their universities with the scientific institutes where most research occurs and garnering greater support from both public and private sources. Japan has focused on the incorporation of its national universities, separating them legally from the government to provide them with the autonomy and presidential authority to become more strategically aligned with the global economy.

Current effort represents a victory of the British model, with the current five years of undergraduate study will be divided into a 3-year bachelor's and two-year master's programs. Core curriculums are being prepared in 7 disciplines: business, chemistry, education sciences, geology, history, math, and physics. A growing number of European universities are teaching in English, the accepted global lingua franca. English-language master's and PhD courses are already the norm in Nordic countries. Even universities in France, Germany, Italy, and Spain are introducing courses in English, although some are resisting.

The Bologna Process

When European education ministers met in Bologna in 1999 and promised within a decade to forge a common market for universities, it seemed mere Euro-rhetoric. Big obstacles stopped students nipping abroad for a term, or getting degrees recognised. Many countries offered no degree below Masters level. Some examined course modules separately, others all in one go. Under the Erasmus programme many students travelled to other European countries for between a term and a year—but they often found their universities reluctant to give them credit for it.

Yet on April 28th no fewer than 46 European education ministers—from the European Union and 19 other countries, including Russia and Turkey—will gather in another ancient university city, Leuven, to declare the "Bologna process" a triumph. A "European credit-transfer system" is on its way; next year will bring a "European higher education area". There will be a standardised "diploma supplement" giving details of what students have learnt. And three-year Bachelors degrees followed by two-year Masters are now the general rule, with few exceptions.

Another reason why some governments embraced Bologna was to give cover for reforms they wanted anyway. Shorter, more work-related degrees appealed to the Germans, keen to stop students hanging on for years at taxpayers' expense. In France, changes to university financing have been called "Bologna". In Spain "Bologna" is the excuse for introducing fees for Masters degrees.

Many students now anathematise "Bologna" as a capitalist plot. They plan protests in Leuven; already, students have taken to the streets in France, Italy, Spain and Greece. The resemblance to the Anglo-American system, plus Bologna's emphasis on graduate employability, are big grievances. Some academics fret that the secret aim is to privatise universities. Bologna's endorsement of more autonomy could lead (horrors!) to more freedom for universities in hiring, promotion and pay. (Economist)

(Use photo of students attempting to block EUA meeting in Barcelona, 2008)

The Bologna Degree Cycles

The most visible change in European higher education to U.S. observers has been the adoption of a standard degree structure in three cycles that we identify as Bachelor's, Master's, and Doctoral, with countries seemingly converting all their existing programs to a three-year Bachelor's and two-year Master's, and U.S. graduate school admissions committees in a resulting quandary about how to judge the new three-year Bachelor's. Actually, the conversion is neither that simple nor that uniform. First, the new European degree cycles made room for "short cycle" degrees (some of which previously existed) analogous to our Associate's but -viiiconsidered as within the Bachelor's. Second, not all degree programs converted to the 3+2 model, and many conversions are simply repackagings. We find 3+1 (in the UK, where this relationship is traditional), 4+2, 3 1/2 + 1 1/2, etc. let alone five and one-half and six year degrees in medicine. Even less noted is the fact that "three years" or "two years" refers to "notional time" (i.e. the equivalent of X years of full-time study), not elapsed calendar time.

Less noted, still, is the emergence of the new Master's degree as the empirical standard for completion of higher education

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study. While access to the Master's is not guaranteed, in Switzerland the continuation rate from three-year Bachelor's to two-year Master's degrees among university students is 90 percent; in Germany, 80 percent among university students, and 40 percent of the Fachhochschule students. By some interpretations, the new Master's is simply a repackaging of the old, longer Bachelor's degrees, but in a global labor market, where labels count, this trend presents a major challenge to U.S. students. (Adelman)

Two key issues remain: the increasing differentiation of both institutional types and missions demanded by the global marketplace and the role of the state in planning, management, and regulation of higher education. It was increasingly apparent that the great diversity of higher education needs, both on the part of diverse constituencies (young students, professionals, adult learners) and society more broadly (teaching, research, economic development, cultural richness) would demand a diverse ecosystem of institutional types. Here diversity should be viewed as positive and not conflated with the concept of hierarchy. One could envision a range of models of universities ranging from the mega to the single faculty or single focus business school. Notwithstanding the differences in scale between institutions of higher education there was still a need to ensure that each institution had the capacity to 'flex

learning and teaching, research, knowledge transfer, and increasing and widening participation.

In regions dominated by public institutions, there was a need to think through the implications of creating new institutional forms for new private universities in Europe. These new institutions would need to be flexible and non-bureaucratic to survive in a market-led environment. There could well be a market for relatively small, flexible, world-class higher education

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institutions, which like some of the world-class business schools, could operate successfully on private funding for tuition fees while also competing for state funds for research and knowledge transfer. There might even be a market for the broad educational training characterizing the liberal arts colleges of the United States.

There was increasing government and stakeholder pressure for good governance and accountability, particularly in view of the expansion of higher education participation and the increasing important of education to prospering in the global knowledge economy. Paradoxically, in some nations even as relative government declined, the efforts to regulate universities and hold them accountable increased. Although some of this was stimulated by the sub-optimal activities of a relatively small number of institutions, it was perhaps also evidence of governments attempting to retain control over the sector through regulation even as their financial control waned. Yet such excessive regulation could be counterproductive in a global economy that demands agility and innovation.

The European Union was focused on creating quality standards that would operate effectively across national boundaries. In the context of research the prospective European Research Council would drive competition among the elite European research universities. There is increasing evidence of

The experience at both the regional and national level is that governments can regulate high but they are usually unable as a corollary to develop effective plans for higher education. Yet both efforts may be for naught in an increasingly competitive global economy that will demand world-class standards for all activities, including higher education.

GALLERY 4.8 Universities of the World



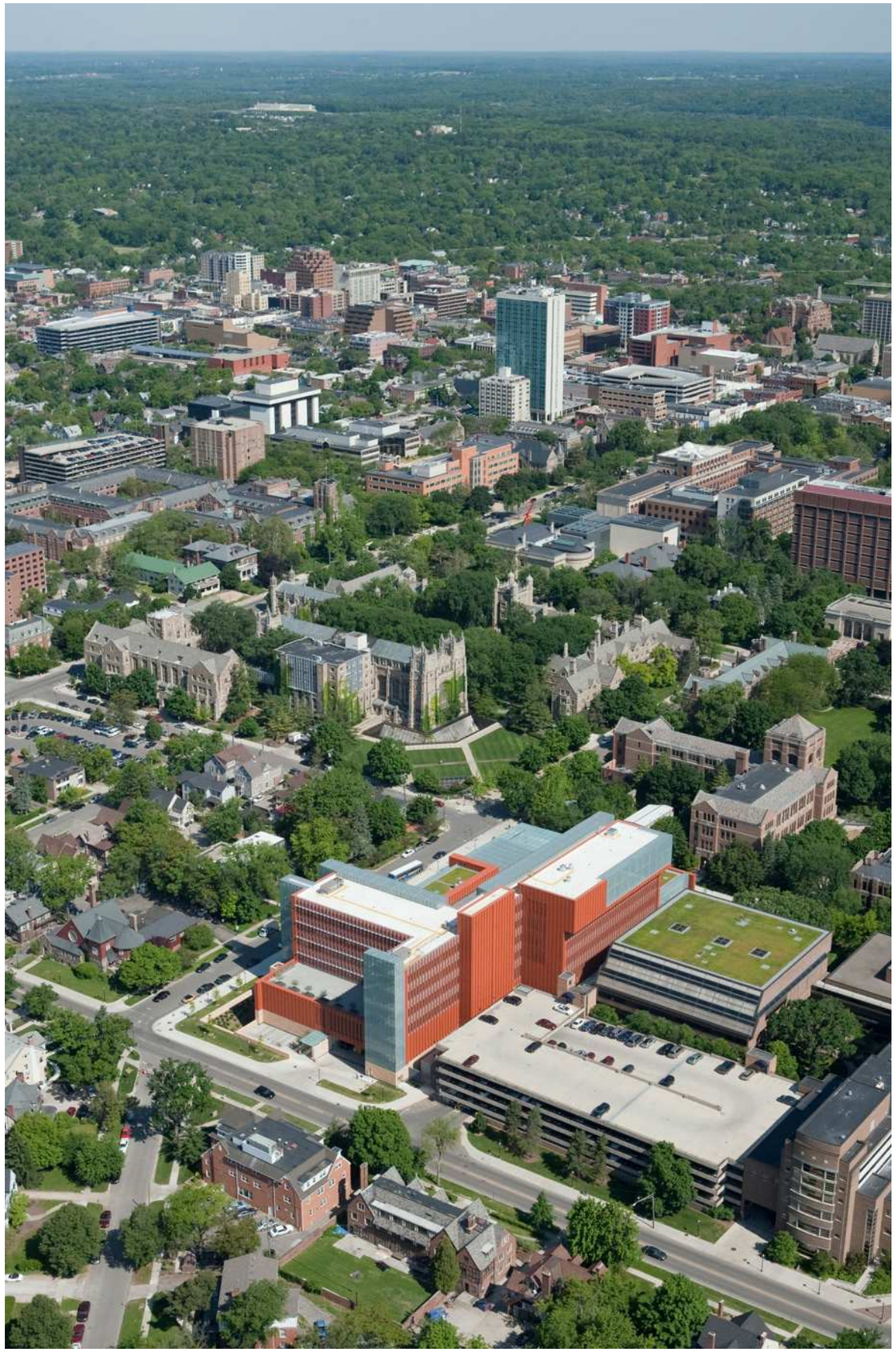
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CHAPTER 5

A Uniquely American University

A university anywhere can aim no higher than to be as British as possible for the sake of the undergraduates, as German as possible for the sake of the graduates and research personnel,, as American as possible for the sake of the public at large–and as confused as possible for the sake of the preservation of the whole uneasy balance. (Kerr)



SECTION 1

The American Colleges Prepare for Change



Harkness Tower at Yale University

The European model continued to propagate throughout the world. By 1800 Latin America had taken its models from Spain and North America from Great Britain. But in the 19th century the German Humboldt model would be implanted in the United Sates, Japan, and Elsewhere. Concurrently, too, an amagam of features of the old and the modern English and Scottish universities did much to shape North American colleges and universities as well as those of Canada, India, Australia, and South Africa. The French model was more limited in impact, to North Africa, Syria, and Indo-China. The world's idea of the university as it was shaped in the 19th century is therefore a European one.

The first colleges founded by the British North American colonists had been seen by them as appropriate adaptations in a new environment of patterns of already tried and tested English institutions. The later state universities in North Carolina and Georgia broke with their antecedents in having no religious affiliation and widened the range of subjects taught, under the influence of the Scottish universities and later of University College, London. Despite these developments, though, the state universities continued to resemble in character the colleges which had preceded them. Notably they were established and supported with little encouragement or aid from government; the traditional course of studies pursued in Oxbridge remained fairly intact, though with an admixture of moral philosophy, policy economy and sciences from Scotland. Courses were strictly prescribed, attendance at classes

was compulsory, and the morals of students were kept under surveillance.

Organization also long followed British patterns. Higher educational institutions had to be chartered by political authority. Once a charter was received, a private college was autonomous. Statutes and bylaws governing their internal working and structure were drawn up by boards of trustees; neither the state nor the teaching staff had a hand in their promulgation. Instead North American collegiate government bore a close resemblance to that of the 18th century dissenting academies in England; there ws usually a strong board of nonacademic governors a principal or president with much executive power, and no effective voice for the teaching staff. There was no question of even the most senior teachers having a voice in the appointment of the president. Deans were chosen by the president and served at his pleasure.

Prior to the Civil War most of higher education in American still held to the collegiate model aimed at socializing young adults through a classical curriculum stressing rote learning and recitation of the classical curriculum to achieve mental discipline. Yet both the needs of a rapidly growing and industrializing economy, the democratic character of the young nation shaped very much by the "life, liberty, and pursuit of happiness" themes of the Enlightenment, and the awareness of the shift of European universities increasingly toward the generation of new knowledge through faculty scholarship as a fundamental responsibility, all suggested the need for a new paradigm. Despite the failure of Henry Tappan's early attempt to import the German university into Michigan at mid-century, the German university still held out an attractive model for transforming American higher education from a collegiate to a university character. In particular, the German model placed preparatory education at the secondary (Gymnasium) level so that universities could more appropriately focus on the advancement of knowledge. German universities provided both faculty and students with both the independence (Lehrfreiheit and Lernfreiheit) and academic structures (e.g., seminars, dissertations, doctorates) to enable original research.

Yet, just as it had with the Oxbridge collegiate model, American higher education would adopt only those elements of the German university that best aligned with American needs and experience. For example, it would retain the university's role in providing general education at the undergraduate level, creating graduate schools for the Humboldtian focus on research and advanced education. While the faculty would gain academic freedom (Lehrfreiheit), students would have only limited freedom in academic programs (Lernfreiheit). Rather that stressing only pure research for knowledge's sake, American universities would expand investigations to include utilitarian objectives more directly responsive to the needs of society. Furthermore the European tradition of academic self-governance could not compete with presidential

rule, although the faculty did gain strength during the 20th century. The idea of academic freedom, scarcely mentioned before the appearance of the German university model slowly advanced to widespread affirmation by the profession of university teachers and finally to governing boards and presidents.

But there continued to be considerable variation in how American colleges and universities would evolve. Harvard and Yale adopted the Oxbridge residential college model. Even in universities which were to show the greatest readiness to accept the German model the provision of residential accommodation was associated with traces of the collegiate pattern of Oxbridge. There was also opposition to the German model when, as early as 1828, the faculty of Yale College declared that, since the German universities were chiefly occupied with professional studies while the American colleges sought to lay the foundations of a liberal education, they doubted that German universities could serve as a model for American colleges.

Students were admitted to American colleges and universities at an early age and graduated young. There were no courses of preparation for professional careers on offer; graduates might energy such careers later, the clergy for example. The often promulgated goal was defined as the formation of character; it lives on in American undergraduate life today, in the dreams of self-discovery, or the discovery of one's true identity.

Colleges and Houses

The great monuments to the return to Aristotle, the great monuments that symbolized the revolt against the university idea, were the benefactions of Edward Harkness which provided Harvard in 1928 with its house system and Yale in 1930 with its system of colleges. The Harvard houses and Yale colleges recognized the responsibility of the two great old colonial institution to inculcate patterns of social conduct and moral behavior and to provide in the crowded, overgrown atmosphere of Cambridge and New Haven encouragement for those collegiate values that Harvard and Yale had once so nobly sustained.

The innovations at Harvard and Yale were expensive, so expensive that not even they were able to afford the faculty, the tutors, which their new residential patterns encouraged. The Harvard and Yale residences never achieved the intellectual record of which they were capable, and although there were exceptions, the Harvard houses and Yale colleges were more successful in reviving the social and moral climate of the collegiate way than in sustaining any marked intellectual improvement.

Lowell struck paydirt in 1927 when a Yale graduate, Edward Harness, his pockets filled with Standard Oil dollars, paid for

the Harvard houses (while Yale was still negotiating with him). The Houses were to be seminars in living, where different ideas and outlooks would clash around the dinner table and in the Common Room. (Jews and Blacks were discouraged from living in the Houses.) (Brooks Mather Kelley, New Haven, Yale University Press, 1974)

Since the 18th century a kind of homegrown tradition of research had existed in America evolved from the philosophy of Enlightenment. Men of means pursued this almost as a hobby. In contrast, younger American scientists obtained inspiration from the German university. German rhetoric about academic purpose appears to have centered upon three quite different conceptions: first on the value of non-utilitarian learning, freely pursued without regard to the immediate needs of the surrounding society (hence "pure learning", protected by Lehrfreiheit); second on the value of Wissenschaft, or investigation and writing in a general sense as opposed to teaching; finally academic aim running toward some form of all-encompassing idealism.

"A university is a body of mature scholars and scientists, the "faculty", with whatever plant and other equipment may incidentally serve as applies for their work." said Thorstein Veblen. Note there is no mention of undergraduate students or administration or religion or morality. Pure science formed the major concern of leading academic scientists. Under inspiration from Germany, the idea of studying science for its own sake came even more clearly to the fore. Institutions such as Johns Hopkins and Clark University were based on such abstract learning. The German ideal of "pure learning" largely unaffected by utilitarian demands became the notion of "pure science" by Americans, largely missing the larger implications of Wissenschaft which encompassed broader knowledge.

The dominant characteristic of the new American universities was their ability to shelter specialized departments of knowledge. A side consequence was the disappearance of the jack-of-all-disciplines professor. The most pronounced effect of the increasing emphasis upon specialized research was a tendency among scientifically minded professors to ignore the undergraduate college and to place a low value upon their function as teachers. Three basic types of instruction came into prominence in the new American university: the laboratory, the lecture, and the seminar. Gradually these forms of teaching grew to dominate higher education, although the old-fashioned recitation survived in an enlivened manner in the discussion group.

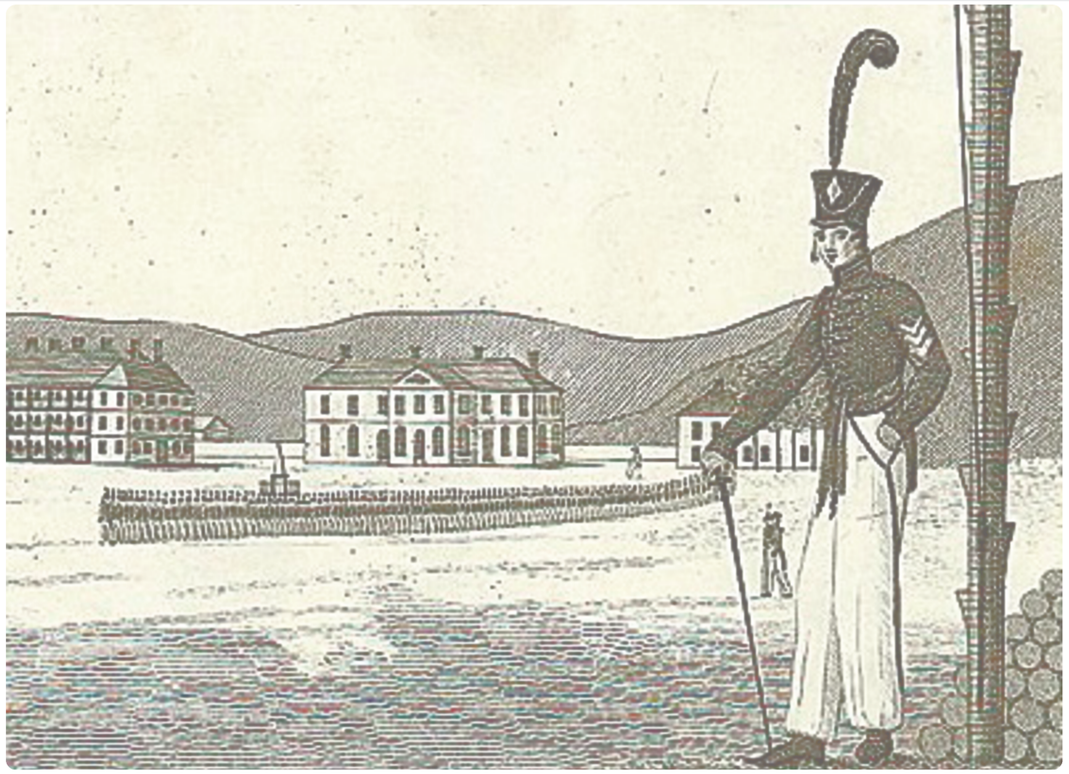
The Early Growth of Colleges and Universities in America

(John R. Thelin,"A History of American Higher Education", Johns Hopkins Press, 2004)

Higher education would become America's "cottage industry". In 1800 there were 25 colleges. BY 1820, 52. But this would be dwarfed by further growth, increasing to 241 in 1860. Creativity in the naming of institutions was carried to an extreme in the upper Midwest where in 1817 a new "University of Michigania" was proposed with the name "Catholespistemiad". Fortunately for the sake of prounuciation, this name did not catch on elsewhere and eventually fell into disuse even in Michigan.

One conspicuous feature of the new United States was the widespread distrust of a strong national government. The only "national" institutions were the two service academies, West Point in 1802 and Annapolis in 1845.

One of the important driving forces for the establishment of 19th century colleges was the Great Awakening, a religious revival movement led by evangelical Protestant ministers, a sharp increase of interest in religion, a profound sense of conviction and redemption on the part of those affected, a jump in evangelical church membership, and the formation of new religious movements and denominations. This led to a great fervor to found new colleges to propagate religious faith. In 1811 Miami University and 1818 Ohio University were founded. Illinois opened in 1829 with nine students, none of whom had ever studied English grammar.In 1830 Indiana College was founded. Perhaps as many as 700 colleges tried and failed before the Civil War.



It was pointed out that England was managing nicely with four universities for a population of 23,000,000, while Ohio with a population of 3,000,000 boasted 37 institutions of higher learning.

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GALLERY 5.2 The College System



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higher learning. (John R. Thelin,"A History of American Higher Education", Johns Hopkins Press, 2004)

Public vs. Private

Harvard, William and Mary, and Yale, were creatures as much of the state as of the established churches they were intended to serve. And whether they should be thought of as state colleges or as church colleges is a problem in semantics that is

perhaps best resolved by calling them state-church colleges. Harvard was supported by the General Court from the moment of its birth; it relied on such support long past the colonial period.

Yale, which for a long time was tossed around by a squabbling legislature, in the end built up a firm and useful relationship with the state. Yale was the beneficiary of aid from the colony and the people of Connecticut. When chartering the Collegiate School, the General Assembly voted an annual subvention of 120 pounds. Private individuals also contributed. Throughout the 18th century Connecticut's contribution amounted to more than one half of the total gifts to the college.A unique financial support of Yale during the 18th century was "the avails of a French prize brought into New London by an armed vessel of the State". This close relationship was neither permanently secure nor always a certain blessing; in 1763 a group of citizens called on the legislature to fulfill its parental responsibility by standing as a court of last appeal for Yale undergraduates.

Speaking in 1873 against the creation of a tax-supported national university, Eliot advanced the argument that "our ancestors well understood the principle that to make a people free and self-reliant, it is necessary to let them take care of themselves, even if they do not take quite as good care of themselves as some superior power might." Had this principle actually been well understood by Eliot's ancestors, there would have been no Harvard and non presidential office there for him to use against the principle of government-financed higher education. On over one hundred occasions before 1789 the General Court of Massachusetts appropriated funds for Harvard College, which clearly was not capable of taking care of itself.

However, despite the fact that the colonial colleges had strong public support, they were in no sense "state" institutions. They were governed during the colonial period by a board composed entirely of clergymen. In 1819 the landmark Dartmouth College decision by the Supreme Court. The state tried to convert it into Dartmouth University and control it. The Court ruled that Dartmouth College was not a civil or public institution, nor was its property public property. It was a private institution with an object to benefit the public. But it was not a public institution under public control.

This was a key clarification of the distinction between private and public institutions. The decision also gave to the Court the incidental opportunity of endorsing the American principle of academic organization whereby control resides not in the hands of the faculty but in an external board. However, by encouraging college-founding and by discouraging public support for higher education, the Dartmouth College decision probably helped to check the development of state universities for half a century. (Frederick Rudolph, The American Col-

lege and University, The University of Georgia Press, Athens, 1962)

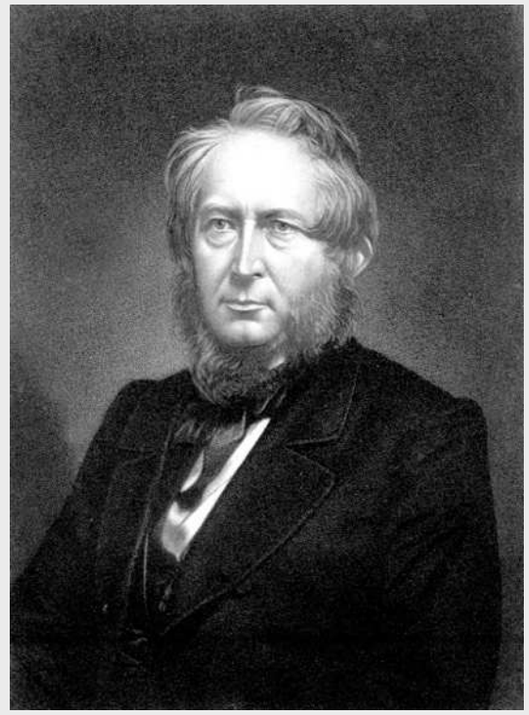
Yet, despite these variations on European themes, the American university would be more similar to the German institutions than the English and French models, which regarded it as either only an examining and degree granting organization (Oxbridge) or an administrative organization for supervising and regulating instruction at large (the Universite Imperiale de France). In fact, the American university would assume all of these roles in addition to the German model of a graduate faculty working with a body of student scholars to create new knowledge through original research while retaining the Oxbridge collegiate model of intellectual and social development through general education.

To understand this phase of the evolution of the American university, it is useful to return once again to our case study of the University of Michigan.

Back to Michigan...Again



The campus of the University of Michigan (1900)



Henry Tappan

Henry Tappan's effort to build America's first true university, which would not only conduct instruction and advance scholarship but also respond to popular needs, was far beyond what the frontier culture of mid-18th Michigan would tolerate. Nevertheless he laid the foundation for defining a unique form of the American university, weaving together the classical curriculum and mental discipline of the collegiate model, the utilitarian emphasis of the newly emerging state universities, and the German university emphasis on pure scholarship.

During his tenure the University of Michigan broadened the classical curriculum to include the sciences, planted the early seeds for a graduate school to distinguish postgraduate professional studies from undergraduate education, introduced the seminar model of instruction for graduate education, provided students with the ability to select their courses (Lernfreiheit), built the first instructional chemistry laboratory, and launched a major research initiative with the construction of the Detroit Observatory. Perhaps even more significant was Tappan's effort to attract to Michigan's faculty outstanding

scholars, who not only embraced his vision but would go on to propagate it as they moved on to lead other American universities, e.g., Andrew D. White to Cornell, Charles Kendall Adams to Cornell and then Wisconsin, Alexander Winchell to Syracuse, Erasmus Haven to Northwestern, and so on. Yet Tappan's vision, personality, and European pretensions ran counter to the frontier culture of Michigan the wrong way, with one newspaper describing him as "the most completely foreignized specimen of an abnormal Yankee we have ever seen". Michigan's Board of Regents, urged on by several faculty members strongly resistant to change fired Tappan in 1863, ironically during a secret session soon after their defeat in the statewide election.

The lame-duck board named as his successor Erastus Haven, a former faculty member (and one of those who had opposed Tappan and long sought the Michigan presidency). However Haven broke no new ground in moving further toward Tappan's vision of a university. In fact he sided with the regents to deny admission to women. The unusual nature of his appointment in the wake of Tappan's firing would continue to deprive Haven of strong faculty and regental support. He soon became frustrated with faculty criticism and left in 1869 for the presidency of Northwestern University.

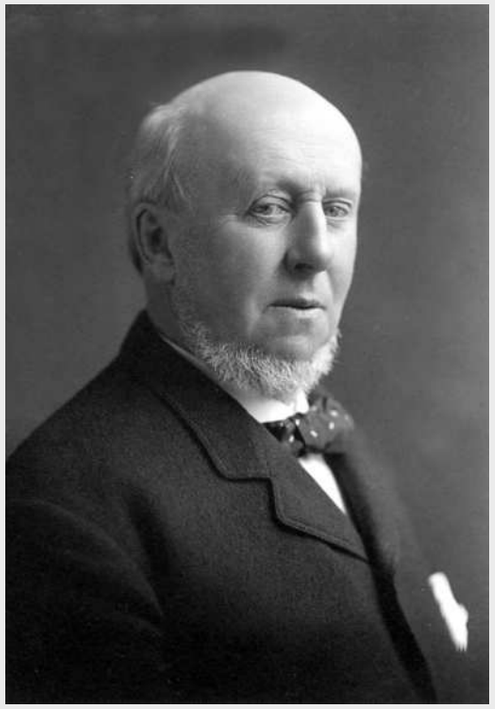
The regents asked Henry Frieze, professor of Latin Language and Literature, to serve as president pro tempore until Haven's successor could be selected. Frieze would later serve again in the interim role on two other occasions when Angell went on overseas assignments. Despite his brief tenure, Frieze accomplished much, quietly moving to admit women; obtaining the funds to build University Hall, the dominant academic building of the 19th century campus; and establishing the University Musical Society, the center of cultural life in the university and Ann Arbor to this day. He moved ahead to implement several of Tappan's plans, including establishing a "university college" that was essentially a graduate school. It was Frieze who as interim revived Tappan's project of turning the state's high schools into an American version of Germany's gymnasiums, by creating the American secondary school systems, the a'high schoolsaa' as we know them today.



Henry Frieze

Prior to the Civil War, most public education occurred at the primary level, and colleges and universities were obliged to create associated academies to prepare students for college-level studies. Frieze instead began the practice of certifying select Michigan public schools as capable of offering respectable college preparation, thereby freeing the university from pre-

paratory commitments and stimulating the schools of the state to extend their responsibilities into secondary education. This was the device that unleashed the high-school movement in the Midwest and later the nation, not only enabling the state universities to cultivate scholarly aspirations, but reshaping public education into clearly differentiated elementary and high schools.



James Burril Angell

Michigan's next president, James Angell, not only embraced but managed to achieve much of Tappan's agenda during his 38-year tenure and is widely regarded today as one of the most important architects of the modern state university. Although Angell himself was not an educational visionary himself, there were others on the faculty such as John Dewey who strongly influenced the direction of American education. Many of today's characteristics of the University of Michigan first appeared during Angell's long tenure, such as the academic organization of schools and colleges, the four-year B.A./B.S. curriculum of 120 semester hours, the Michigan Daily, the Michigan Marching Band, and the Michigan football team. When Angell arrived the university had 33 faculty and 1,100 students, and the university administration consisted of only three people: a president, treasurer, and secretary. By the time Angell retired in 1909, the university had grown to over 400 faculty and 5,400 students, the largest in America.

As noted earlier, Angell was an articulate and forceful advocate for the role of the public university in a democracy. He continued Frieze's efforts to shape coherent systems of public elementary and secondary education and replaced the classical curriculum with a more pragmatic course of study with wider utility and public accountability. With other public university leaders of the era such as van Hise at Wisconsin, he established the state universities of the Midwest in a central role in the life of their states.

Henry Philip Tappan (1852–63) (Peckham)

Henry Philip Tappan, Michigan's first president, brought to Ann Arbor a vision of building a true university that would not only conduct instruction and advanced scholarship but also respond to popular needs. He aimed to develop an institution that would cultivate the originality and genius of the talented few seeking knowledge beyond the traditional curriculum, along with a graduate school in which diligent and responsible students could pursue their studies and research under the eye of learned scholars in an environment of enormous resources in books, laboratories, and museums. Although his expectation that university professors should en-

gage in research as well as teaching disturbed some, it also allowed him to attract leading scholars and take the first steps toward building a "true university" in the European sense.

Yet Tappan also had an elitist streak. His vision, personality, and European pretensions eventually began to rub the frontier culture of Michigan the wrong way, with one newspaper describing him as "the most completely foreignized specimen of an abnormal Yankee we have ever seen."19 Although Tappan's first board of regents strongly supported his vision, they were replaced in 1856 by a new board that, almost immediately after its election, began to undermine Tappan's leadership, by using a committee structure to weaken his executive powers. The board's opposition to Tappan was joined by several faculty members strongly resistant to change, along with the powerful editor of a Detroit newspaper. Eventually, the convergence of these hostile forces emboldened the regents to fire Tappan in 1863, ironically during a secret session soon after the regents' defeat in the statewide election. The lame-duck board named as his successor Erastus Haven, a former faculty member who had long sought the position.

Despite this ignominious end to his tenure by a hostile board of regents, Tappan is viewed today as one of the most important early American university leaders, not only shaping the University of Michigan, but influencing all of higher education and defining the early nature of the American research university. Years later, President James Angell was to have the last word on the sordid incident: "Tappan was the largest figure of a man that ever appeared on the Michigan campus. And he was stung to death by gnats!"

Henry Simmons Frieze (1869–71) (Peckham)

The regents asked Henry Frieze, professor of Latin language and literature, to serve as president pro tempore until Erastus Haven's successor could be selected. Frieze would later serve in the interim role on two other occasions, when his successor, James Angell, went on overseas assignments. Despite his brief tenure, Frieze accomplished much, quietly moving to admit women; obtaining the funds to build University Hall, the dominant academic building of the nineteenth-century campus; and establishing the University Musical Society, the center of cultural life in the university and Ann Arbor to this day.

Perhaps most significant, Frieze created the American secondary school systems, the high schools, as we know them today. Prior to the Civil War, most public education occurred at the primary level, and colleges and universities were obliged to create associated academies to prepare students for college work. Frieze began the practice of certifying select Michigan public schools as capable of offering respectable college preparation, thereby freeing the university from preparatory commitments and stimulating the schools of the state to extend their responsibilities into secondary education. This device unleashed the high school movement in the Midwest and later the nation, not only enabling the state universities to cultivate

scholarly aspirations, but reshaping public education into clearly differentiated elementary and secondary schools.21 James Angell put Frieze's contributions well: "No man except President Tappan has done so much to give to the university its present form and character. No one was ever more devoted to the interests of this institution or cherished a more abiding hope for its permanent prosperity and usefulness."22

Andrew White (Laurence R. Veysey, "The Emergence of the American University", University of Chicago Press, 1965); Frederick Rudolph, The American College and University, The University of Georgia Press, Athens, 1962

Andrew White's early career was as a Michigan faculty member recruited by Henry Tappan to the University. Later as a member of the New York State Senate, he met Ezra Cornell, a self-made man who had become the largest stockholder of Western Union, who was serving as chair of the committee on agriculture while White was chair of education. In response to the Morrill Act, White convinced Cornell that the new college should train "captains in the army of industry". Cornell's special claim was based partly on chronological priority since it was the first major university in America, discounting a few tentative experiments, to be crated on a reformed basis from the ground up. Its founding inaugurated a new era in private education philanthropy, and yet at the saeme tiem it was the first spectacular visible fruit of the Morrill Act. Erza Cornell proclaimed "I will found an institution in which any person can find instruction in any study."

Cornell University was therefore designed to join in the new spirit of scholarship as well as to foster the vocational subjects and the courses in applied science which were implicit in the land-grant idea.

Andrew D. White, became the first president of Cornell, a man possessed by a dream of true university proportions, once referred to the re-Cornell period in the history of American higher education as "the regime of petty sectarian colleges".

Actually, White was something of an aesthete. A Yale graduate and then a professor of history, he once admitted that "During my Senior year in college I regarded the studies of my contemporaries in the Shieffield Scientific School with a sort of contempt, with wonder that human beings posses of immortal souls should waste their time in work with blow pipes and test tubes."

James Burrill Angell (1871–1909) Peckham; (Laurence R. Veysey, "The Emergence of the American University", University of Chicago Press, 1965)

Frederick Rudolph, The American College and University, The University of Georgia Press, Athens, 1962

Michigan's longest-serving president (38 years), James Angell, had served as president of the University of Vermont and on the faculty of Brown University before coming to Ann Arbor. James Angell was the chief architect of the modern state university, a giant of the founding era of the research university. He presided over Michigan's growth into the largest university in the nation. He was persuasive with both the regents and the state legislature. He managed to convince the state to fund the university through a mill tax (a fixed percentage of the state property tax), thereby avoiding the politics of having to beg the legislature each year for an operating appropriation (as is the practice today).

In 1871 Angell, pondering whether to accept the presidency at Michigan, let himself be decided not by God's will (as some of his friends urge) but by the amount of salary he would receive. An indication of early attitudes about ambition may be found in a shrewd letter from a professor at Yale giving advice to Angell on whether or not to accept this major post: "The moral rules are obvious: on the one hand, to guard against the influence fo the personal desire of position, reputation, etc., and on the other, to guard against an equal or grater peril–the undue suspicion that one is yielding ot such impulses, and the consequent rejection of an opportunity to do a great and good work–in other words, a wrong humility and mistaken self-sacrifice.

Although Angell himself was not an educational visionary, he recruited many faculty members such as John Dewey who strongly influenced the direction of American education. It is during Angell's long tenure that we can mark the first appearance of many of the University of Michigan's present characteristics, such as the academic organization of schools and colleges, the four-year BA/BS curriculum of 120 semester hours, the Michigan Daily, the Michigan Marching Band, and the Michigan football team. When Angell arrived, the university had 33 faculty and 1,100 students, and the university administration consisted of only three people: a president, treasurer, and secretary. By the time Angell retired in 1909, the university had grown to over 400 faculty and 5,400 students.

As noted earlier, Angell was an articulate and forceful advocate for the role of the public university in a democracy. He continued Frieze's efforts to shape coherent systems of public elementary and secondary education and replaced the classical curriculum with a more pragmatic course of study with wider utility and public accountability. With other public university leaders of the era, such as Charles R. Van Hise at Wisconsin, he established the state universities of the Midwest in a central role in the life of their states.

Yet Angell also embraced much of Tappan's original vision for a true university in Ann Arbor. He favored eliminating the freshman and sophomore years and focusing the university on upper-division and graduate education.



In taking responsibility for shaping coherent systems of public elementary and secondary education, in abandoning the classical curriculum and substituting for it a curriculum of wider usefulness and popularity, the postwar western state universities assumed a central role in the life of the state. At Michigan Angell promoted the utilitarian program but in an increasingly mild and unenergetic fashion. He wanted to bring the numerical expansion of Michigan to a halt.

Angell was the last among Michigan's "headmaster" presidents, men who fostered an intimate relationship with students and faculty. The large, complex university of the twentieth century would require a far different type of leadership.

SECTION 3

The American Research University



Gilman Hall, Johns Hopkins University

The genius of American higher education was to graft the German professorial university at the graduate level onto the English collegiate model of Oxbridge at the undergraduate level, while expanding the mission of the institution to address the utility sought by a growing nation. This was made possible both because of strong public support through initiatives such as the Land Grant acts, but also because of philanthropy of wealthy Americans such as the Ezra Cornell, John Hopkins, and John Rockefeller. It was led by the vision and skill of several 19th century university presidents including Tappan Wayland, White, Eliot, Adams, and Angell (four of which were from Michigan). And it benefited from a period of conservatism, complacency, and even decadence characterizing the collegiate movement following the Yale Report of 1828 that eroded its popularity with prospective students who sought more pragmatic objectives such as preparation for a career in a rapidly growing and increasingly industrialized nation.

The Morrill Act had established that American higher education simply had to evolve beyond a collegiate model aimed only at providing a classical education to an elite element of society. Embracing the themes of the Progressive Era, the universities emerging in the latter half of the 19th century aimed not only at generating new knowledge through original research and applying it to serve society through new organizations such as the agriculture experiment stations and extension movement. They also had a mission to provide educational opportunities to the working class, both through oncam-

pus programs and through their role in building a nationwide system of primary and secondary education.



Andrew Dickson White

Although Ezra Cornell helped to launch this commitment of American higher education with his proclamation, "I will found an institution in which any person can find instruction in any study.", Cornell University was actually built by Andrew White, a disciple of Henry Tappan at Michigan. And it was in Midwestern universities such as Michigan and Wisconsin and propelled by the Progressive Era that the spirit of higher education for the masses began to take shape.

Freer admission policies established the basic structure of its student population as the heterogeneous rather than the cohesive sort. By comparison with his eastern counterpart, the western collegian remained less sophisticated and in this sense perhaps more "democratic". There were fewer visible extremes of wealth or poverty; the contrast was more often between town and city. For example, at Michigan in 1902 a poll of student parents occupations were 30% business, 22% farmers, 17% nonacademic professionals. The college student had to be treated as adult rather than as an immature boy. Like the urban universities of southern Europe, students were expected to live in the community rather than sequestered in collegiate dormitories on pastoral campuses.

The Johns Hopkins Experiment

An important exception to the utilitarian nature and broad access aims of the great Midwestern universities was Johns Hopkins founded in 1876, the most impressive example of the German university's ideals of advanced scholarship and PhD programs being transplanted into the U.S. In 1867 Johns Hopkins promised his fortune in railroad stock to the creation of what would become the first substantial American effort to support pure scholarship. At the time Cornell and Michigan were attempting to marry the practical and the theoretical, attempting to attract farm boys to their classrooms and scholars to the faculties. The visits of the Hopkins trustees to these universities convinced them that the time was ripe for the development of a great graduate university on the German model.

When trustees of Johns Hopkins asked Yale and Princeton's presidents for their advice, they refused even to answer the letter. When they approached Andrew White of Cornell and Charles Eliot of Harvard, neither White nor Eliot urged emphasis on research, and instead recommended they duplicate Cornell or Harvard's programs for a more practical higher education.

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However when they approached James Angell of Michigan, he convinced them that the time was right for the development of a great graduate university on the German model. Very much in the Michigan spirit, he argued that whatever they did ought to be something new and different. A rapidly changing nation required new colleges and universities that could change with it!

(Alternative) When trustees of Johns Hopkins asked Porter for his advice, he, like McCosh of Princeton, refused even to answer the letter. Yet Porter mingled weakness with intransigence, letting Yale drift even to the point of tolerating extremely lax standards



Daniel Coit Gilman

When asked to advise the Johns Hopkins trustees on the nature of the forthcoming university, neither White nor Eliot urged emphasis on research, and instead recommended they duplicate Cornell or Harvard's programs for a more practical higher education. (There is some evidence that the French system impressed them at least as much as the German.)

The visits of the Hopkins trustees to these universities convinced them that the time was ripe for the development of a great graduate university on the German model. In their decision they were perhaps helped by President Angell of Michigan, who argued that whatever they did ought to be something new and different.

The most striking difference was the way in which Johns Hopkins developed as a faculty-centered institution. It saw the faculty, its needs, its work, as so central to its purpose that Gilman insisted that the faculty be given only students who were sufficiently well prepared to provide them with challenging and rewarding stimulation.

The Hopkins idea brought with it the graduate school with exceptionally academic standards, the renovation of professional education–particularly medicine–the department, the creation of research institutions and centers, university presses, and the great proliferation of courses (since just as Lernfreiheit let students pick their courses, Lehrfreiheit let faculty offer their wares). Each professor had his own interests; each wanted the status of having his own special course. The most striking difference was the way in which Johns Hopkins developed as a faculty-centered institution. It saw the faculty, its needs, its work, as so central to its purpose that Danial Coit Gilman, founding president of Johns Hopkins, insisted that the faculty be given only students who were sufficiently well prepared to provide them with challenging and rewarding stimulation.

Johns Hopkins was a unique experiment to build a research intensive university based only upon graduate education. Yet the institution was so far ahead of most colleges and universities that aspiring competitors fell drastically short of its example until well into the 20th century. Even Johns Hopkin's efforts to emulate the German university in its entirely ran into serious difficulties. The most obvious reason was that graduate programs needed a pool of educated students from which to recruit their masters and doctoral candidates. But also the administrators of Johns Hopkins discovered that no university can operate without the tuition payments provided by students in the undergraduate college. Finally the liberal arts college provided the real and symbolic core within the university structure that fostered the loyalty of alumni and donors.



David Starr Jordan

There was actually a second effort to faithfully adopt the Humboldt model: Clark University, which aspired to be a "purer" Johns Hopkins, but became a decided failure by all external standards. In 1889 Clark opened as the first and only entirely graduate institution in the U.S. But its benefactor soon lost interest, and it quickly lost its faculty (to Chicago).

One could even question whether Clark was ever really a university.



William Rainey Harper

Stanford University

By contrast, on the West Coast a new institution that had held out promise of high hope was proving to be a miserable disappointment. No contrast could be greater than that between the early years at Stanford and the beginnings of the University of Chicago. Rockefeller as a benefactor was a model of noninterference; Leland Stanford referred to "my university", and Mrs. Stanford thought of herself as its owner. The financial arrangements for Stanford were sloppy.

The inspiration for the undertaking (the early death of an only son) was sentimental. David Starr Jordan, like Harper, approached his job with obsequiousness and a sense of fatalism; he was anything but a free agent. By 1911 he was advising members of the faculty to accept jobs elsewhere.

These contrasting experiences in Chicago and California were proof that the United States was now wealthy enough to support one man's achievement and another man's folly. It was still possible, as Stanford made clear, to found a college when what one had in mind was a university.

Disappearance of Clark University

In building Chicago, he undertook the greatest mass raid on American college faculties in history, collecting 8 former college presidents, relieving Yale of 5 professors, and flown off with the majority of the academic staff at Clark University, including 15 professors. Harper did so well that with a budget for a faculty of 80 in the first year, he hired 120.

Graduate Schools

The German university example was increasingly influential almost everywhere in the creation of an American university, creating a fundamental attachment to the graduate faculty of arts and sciences, to the idea of a body of scholars and students pushing forward the frontiers of pure knowledge.

In 1860 even Yale decided to offer the Ph.D. for high attainments in its graduate Department of Philosophy and the Arts, awarding three doctoral degrees in 1861, although it would retain its identity as Yale College focusing on undergraduate education for many years to come.Columbia created an advanced school of political and social science in 1880 and Michigan achieved something comparable in 1881. (Frederick Ru-

dolph, The American College and University, The University of Georgia Press, Athens, 1962)

The PhD

Yale granted the first PhD in American, but a decade later when Noah Porter was chosen president, it turned decisively in a conservative direction, adopting a standoffish pose refusing even to confer with such reformed institutions as Harvard. Day noted that Yale needed a "School of Philosophy" for the highest reaches of literature and science to be added to the theological, medical, and law schools for it to become like a European university. It should now, however, sacrifice the college to achieve that end. "The college should remain a separate department with the function of teaching the branches preparatory to all others." This did, of course, become, and to some degree remains, the Yale philosophy. At Yale the philosophy was to emphasize the old arts course and use the graduate school to supplement it, while at Harvard graduate and undergraduate work sometimes became mixes and graduate education was used to transform the college. (Thelin)

The American Research University (Turner)

The origin of the American research university is a familiar story. Before the Civil War, American colleges were mostly devoted their energies to controlling unruly students, their curricula to rote learning of classical languages, rhetoric, and simple mathematics. In today's terms, they resembled high schools more than colleges, and certainly not universities, for the best of them aim only to transmit the existing culture; the expansion of knowledge lay utterly outside their purpose. But the very defects of antebellum colleges provoked reform.

The key innovations came from Americans studying in German universities From the failed attempts fo the 1820s to pull Harvard out of its slumbers to the invention of the modern American university at Cornell and Johns Hopkins, the impact of the German university model on reform was key. Americans saw four principal elements in the German model:

The Germans clearly distinguished preparatory studies, appropriate to the Gymnasium, from higher learner, proper to the university.

German universities assumed as their mission the advancement of knowledge (original research.

The universities gave both professors and students the independence needed to pursue knowledge (Lehrfreiheit and Lernfreiheit).

This research ideal took flex in distinctive institutional arrangements, notably the seminar to train researchers and the PhD to certify their competence.

The German research ideal led directly to that American invention, the graduate school.

But on closer reading the tale begins to unravel. Americans borrowed selectively, e.g., lehrfreiheit for academic freedom, but not lernfreiheit for students. The Phd functioned quite differently, in the U.S. as the gateway to academe, but in Germany as the ticket to civil service. The glaring disparity between Teutonic example and American practice may explain why historians put so much emphasis on Johns Hopkins, the one well-studied American university that demonstrably did try to emulate the Germans.

The real story begins not long after 1800 when the education inherited from the English Renaissance–centered on Greek and Latin, rhetoric, etc. and appropriate for 17th century gentlemen–began to be questioned. Although defended in the Yale report of 1828 as providing "the discipline and furniture of the mind", two new paradigms appeared:

One stressed modern languages, mathematics, and the sciences and claimed to offer an education useful in the modern commercial and technological world.

The other developed more gradually out of the old classical education, adding history, literature, and the fine arts in what we call today the liberal arts ideal

The utilitarian paradigm moved toward the specialization of knowledge, leading to the division of intellectual labor within the university. The liberal arts paradigm resisted specialization and insisted on broad grasp and integration of knowledge rather than specialization. These two themes were different directions of reform, not warring campus. The baffled offspring of this mixed marriage still bless our campuses today

A Practical Midwest Bent



Old Main at Ohio State University

The evolution of the American university would face a restless and for the most part ill-educated population. The American public had little enthusiasm for the foreign, the abstract, or the esoteric. They sought more a more pragmatic purpose for American higher education that the preparation of gentlemen or the search for new knowledge for its own sake.

Hence the Hopkins theme seemed to align best with the frontier spirit of the state universities in the Midwest where frontier democracy and pioneering spirit would support such a radical departure from the collegiate paradigm. While Harvard moved closer to Yale and Princeton in its conservatism, the state universities in the Midwest and western United States became the leaders in educational experimentation and innovation. The contrast between the future Ivy League and Big Ten universities began to be more than simply that between privately endowed and state supported institutions

As noted earlier, Michigan had been an early leader of the effort to build a true American university. As members of its faculty moved on to become university presidents at leading land-grant institutions such as Cornell, Wisconsin, Minnesota, and Illinois, they took with them the Humboldt philosophy to transform these institutions into research universities. Their states joined Michigan in establishing a system of secondary schools, similar to the German gymnasia, to provide students for these early comprehensive American universities.

Hence the momentum shifted to west of the Alleghenies where a more homogenous population encouraged the widespread belief that inclusiveness and quality were not reconcilable goals. The western university which developed along utilitarian lines often simultaneously sought academic excellence, broad accessibility, and–interestingly enough–a tone of social distinction, at least in local terms. The theme which more than any other lends unity to the careers of leading men who came after White, James Angell at Michigan, Charles Kendall Adams at Cornell and Wisconsin, Charles Van Hise at Wisconsin, and David Starr Jordan at Stanford–is the attempt to balance all three of these requirements for institutional success.

The delicate process of gaining support from state legislatures was a challenge, where sustenance had to be obtained for the publicly endowed institutions that were coming into being. Only very gradually and unevenly and with frequent setbacks was state support for higher education gained. The Morrill Act provided a basic incentive; what the states could obtain for nothing they were likely to take. Eventually the alumni of state universities grew to be sufficiently powerful forces within state government to stimulate adequate state support.

But as more Americans began to accept the new institution, the move toward standardization and assimilation grew more powerful. By 1910 practically no one was left who would consider turning away the rising surge of ordinary youth which sought degrees. Scarcely anyone would demand that the university limit itself to the few who fervently cared for science or letters, as distinct from those who could meet the none too rigid formal requirements.

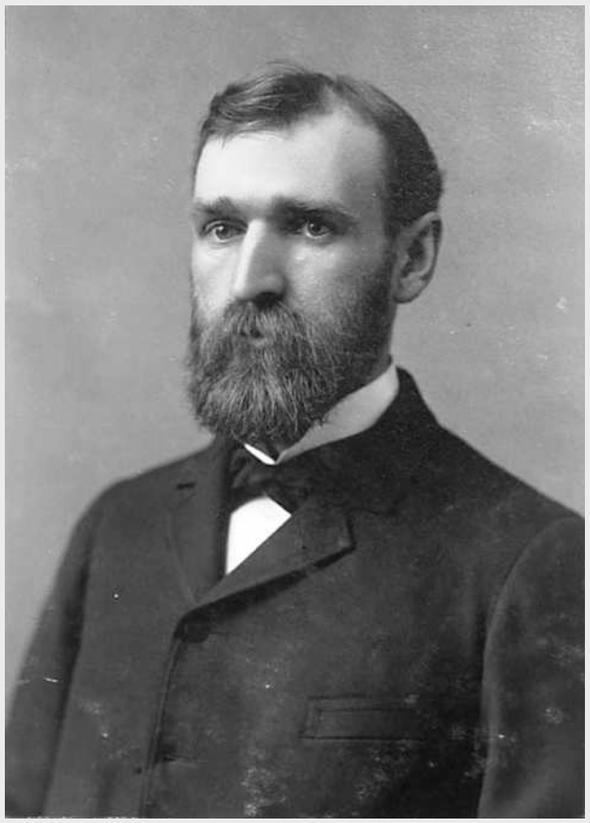
During roughly the same years that this broader change was demonstrating itself, the internal structure of the American university rapidly acquired the shape that in most respects it would maintain from that time forward. This was characterized by increasing presidential authority bureaucratic procedures of many sorts, the new functions of the deanship, the appearance of the academic department with its recognized chairman, and the creation of a calculated scale of faculty rank. President Angell, commenting on the transformation of the University of Michigan during his day, much too casually remarked: “Our rather multifarious usages have grown up without much system under peculiar exigencies.”

Charles Van Hise (Wikipedia)

Professor Charles Richard Van Hise was elected president of the University of Wisconsin in 1903, succeeding Charles K. Adams, a former Michigan faculty member, who had also been president of Cornell. As president of the university, he declared that "the beneficent influence of the university [be] available to every home in the state," later articulated as the "Wisconsin Idea." He was instrumental in the formation of the University of Wisconsin Extension division, which later grew

into the University of Wisconsin System.

Van Hise made the University of Wisconsin a showcase of Progressivism with the Wisconsin Idea, resting on the conviction that informed intelligence when applied to the problems of modern society could make democracy work more effectively. The Wisconsin Idea placed the people's university at the service of the people.



Charles Van Hise

The success of the extension idea and the degree to which it served the Progressive emphasis was revealed in the Smith-Lever Act passed by Congress in 1914, which put the federal government on a permanent sustaining relationship to the extension services of the land-grant colleges.

Utility (Frederick Rudolph, The American College and University, Ch 17, The University of Georgia Press, Athens, 1962)

On the even of the Progressive period President Angell of Michigan commented on how isolated the college of the 1850s had been from the people at large, on the degree to which the popular image of the college had been of a "home of useless and harmless recluses", on how little the colleges had done to interest themselves in the elementary or secondary schools and how uninfluential they had been in the life of the state. All this, said Angell, was in remarkable contrast to the idea of public service which not enlivened the great universities and brought them into the mainstream of American experience.

Angell was unquestionably right, but he credited too little in the way of public service to the old colleges. After all, to a very significant degree they provided society, whether it wanted them or not, with a good share of its clergymen, lawyers, and doctors. Yet, Angell was entitled to his emphasis. In taking responsibility for shaping coherent systems of public elementary and secondary education, in abandoning the classical curriculum and substituting for it a curriculum of wider usefulness and popularity, the postwar western state universities assumed a central role in the life of the state.

By1890 a distinctive Midwestern educational spirit was coming into being. Utility became a rallying cry ina regional rebellion. The East was pictured as standing for books, tradition, and "culture" in an effete sense. The West, in contrast, meant action, practicality, realism, and progress. Cornell and Michigan were attempting to marry the practical and the theoretical, attempting to attract farm boys to their classrooms and scholars to the faculties.

In a very general way, two wings of academic utilitarianism developed, one led by Eliot in the East, the second in the West, inspired by Cornell and to a lesser extent by the University of Michigan. Of the two, the western was quantitatively far more important. In the East, Yale and Princeton long continued their older ways and when they changed it was in a new and different direction, toward the redefined liberal arts. John's Hopkins represented a far more Germanic aim of graduate education. Thus Harvard was pretty much alone.



James Burrell Angell

Hence the momentum shifted to west of the Alleghenies where a more homogenous population encouraged the widespread belief that inclusiveness and quality were not reconcilable goals. The western university which developed along utilitarian lines often simultaneously sought academic excellence, braod accessibility, and–interestingly enough–a tone of social distinction, at least in local terms. The theme which more than any other lends unity to the careers of leading men who came after White, James Angell at Michigan, Charles Kendall Adams at Cornell and Wisconsin, Charles Van Hise at

GALLERY 5.5 Midwestern Universities



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Wisconsin, and David Starr Jordan at Stanford–is the attempt to balance all three of these requirements for institutional success.

At Michigan Angell promoted the utilitarian program but in an increasingly mild and unenergetic fashion. He wanted to bring the numerical expansion of Michigan to a halt. Van Hise and Jordan fought for a more radical version of the utilitarian educational goal. The "Wisconsin idea" had two concrete ele-

GALLERY 5.6 Midwestern Colleges



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ments: the entry of the expert into government and the extension movement.

By1890 a distinctive Midwestern educational spirit was coming into being. Utility became a rallying cry ina regional rebellion. The East was pictured as standing for books, tradition, and "culture" in an effete sense. The West, in contrast, meant action, practicality, realism, and progress.

Hence regional lines tended to become important in defining the distinctions between American universities. Only after 1909 when Harvard moved closer in its outlook to Yale and Princeton, did the contrast between the future Ivy League and Big Ten begin to take on a clear-cut significance. A distinction also began to emergence between public and privately endowed universities, since the major Midwestern institutions were state-supported.

The State Universities (Frederick Rudolph, The American College and University, Ch 13, The University of Georgia Press, Athens, 1962)

The state universities were the product of at least three movements: The earliest, beginning with the University of Georgia in 1785, were inspired by the success of the war for independence and by an effort to find institutional expression for the Age of Reason and for a developing nationalism. This first group of state universities was concentrated in the South, in states where the colonial colleges had not taken root.

The second great flowering of state universities was in consequence of the westward movement and in consequence of giving two townships of federal lands to each new state as support for a "seminary of learning" (e.g., the Northwest Ordinance. Another group developed out of the pattern of federal land-grants that first appeared in the 1787 contract between government and the Ohio Company (leading to Ohio University and Miami University). However not until after the Civil

War on the other hand did many states choose to turn their university endowments over to the support of universities.

By the even of the Civil War perhaps a dozen universities had been created by these grants but as institutions of learning they were almost indistinguishable from the denominational colleges.After the Civil war, the leadership of the University of Michigan and later of the University of Minnesota and the University of Wisconsin, the state universities achieved an identity of their own.

In the post Civil war period, the American state university would be defined in the great Midwest and West through incentives such as the Morrill Land-Grant Act, where frontier democracy and frontier materialism would help to support a practical-oriented popular institution. Some of the states established the concept of a unified system of free state education, on the European pattern, with the state university ad the head of the system. The rationale of course was completely Jeffersonian; indeed, the state universities were reviving the old Jeffersonian position.



Sather Tower at the University of California Berkeley

The fact remains that the American university of 1900 was all but unrecognizable in comparison with the college of 1860. By the final quarter of the 19th Century, the general form of the American university had taken shape. It had become a learning community with a largely residential campus, embracing both a college of liberal arts and sciences and graduate and professional schools, devoted to both teaching and research, committed to widening access and expanding public service. From the colonial colleges to the Humboltdian research university and the Land Grant Acts creating the great public universities with strong service missions; from enrollments of hundreds to thousands of students and the empowerment of the faculty. Indeed, everything that could change about the university did change during this brief period. The complexity of the university made the former college seem a small boys' school in comparison.

Ironically, the rapid evolution of the American university was due in part to the very limited role played by the federal government. To be sure, Congress passed the Morrill Act and other land-grant acts to support colleges and universities, but the United States Constitution delegated the authority for higher education to the states, not to the federal government. While this deprived universities of federal support (at least at the institution level), it also protected them from federal regulation. Indeed, it was the absence of a federal ministry of education that enabled both the innovation and great diversity seen in American higher education.

Hence American colleges propagated rapidly across the nation, supported through state and local funds, gifts, and student fees. They were joined by the state institutions, which merged the collegiate model of undergraduate education developed by the English in Oxbridge with the utilitarian mission of the land-grant universities and then added graduate and professional schools to conduct the research and advanced education characterizing the German universities. This uniquely American university enabled pedagogy to evolve from tutors conducting recitations to professors as expert lecturers, from tutorials to research seminars, from baccalaureate degrees to PhDs. Teaching, learning, and scholarship extended beyond the classroom into the library, laboratory, fieldwork, and expeditions. Academic programs became increasingly specialized, evolving far beyond the disciplines of the medieval university (theology, law, medicine, and the arts) to respond to the explosion of new knowledge, particularly in the sciences.

With growth and specialization of academic programs came academic organization, administration, and bureaucracy; faculties, departments, and programs; department chairs, deans, and presidents. Yet such organization and administration redefined the role and relationship of the faculty. Even as scholarly activities and reputation enhanced their professional stature, enjoying such rights as tenure and academic freedom, they found their influence on the university eroding in the facing of growing bureaucracy and detached governing boards. Yet as frustrating as this may have been to some, it was vastly preferable to the faculty situation of earlier times, perhaps best expressed by Harvard's Eliot when he attempted to portray the low pay of professors as a national virtue: The poverty of scholars is of inestimable worth in this money-getting nation. It maintains the true standards of virtue and honor. The poor friars, not the bishops, save the Church. The poor scholars and preachers of duty defend the modern community against its own material prosperity. Luxury and learning are ill bed-fellows."

Liberal Culture

There were four major points of view of the purpose of higher education in the decades following the Civil War. The first, mental discipline, clearly met defeat. The second and third, utility and research, both grew to claim dominance of a sort and were somewhat interrelated. The fourth was the view that can conveniently be termed "liberal culture", the liberalizing culture which was the leading trait of Oxford and Cambridge and involved the place of the humanities in education.

The modern languages first appeared as distinct fields of study during the 70s and 80s. (Not even the classics were taught in the 19th century college.) Slowly a striving developed to produce the "well-rounded man". Breadth, as produced b the impartial development of the various mental and moral faculties, had been the avowed aim of the mid-19th century American educator. But the advocates of culture defined

well-roundedness in a less psychological, more substantive way. Breadth of character and of understanding were now interpreted in terms of an acquaintance with the actual standards of past civilization.





The principal affirmative idea of the cultivated academic was that the study of man had an intrinsic importance lacking in the study of nature. The challenging task which faced the academic purveyor of culture was to implant the essence of a 2500 year old civilization into the minds of youthful Americans, each of who could be reached only in large groups allotted a mere three hours per week. As to the need for such a task the members of this academic faction were solidly in agreement. As to its practicability, however, they were divided, frequently within their own minds.

The remedy for the boorishness of American society ideally lay in education. Liberal education "needs revival and reinvigoration, not in the interest of the few, a select and eminent class, but in the interest of the many, of the whole community". At Yale and at such smaller colleges as Amherst and Bowdoin, the closing years of the century brought a definite expectation of change. As the notion of mental discipline slipped ever further into the background, these institutions moved into the camp of liberal culture. Wilson attempted the same at Princeton.





Changing Students (Laurence R. Veysey, "The Emergence of the American University", University of Chicago Press, 1965)

A survey conducted at Michigan in 1902 revealed that of all the students there the sons of farmers often wanted to become lawyers or doctors. By 1900 about 40% of the students were women, and this was not to change for many years. The student who was earnestly interested in the ideas of his professor was much rarer in 1900 that it would be decades later. On the walls of dorms and fraternities hung the motto: "Don't let your studies interfere with your education." Except during the uncomfortable moments immediately preceding examinations, college generally remained a pleasant island of prolonged childhood.

Paradoxically an emphasis on purely personal concerns tended to grow as universities became larger, for the students segregated themselves more and more in small groups. On the basis of their undergraduate atmosphere at least three major kinds of academic institutions may be distinguished at the end of the 19th century: i) the homogeneous eastern college, internally cohesive and sharply isolated from the surrounding American society (Princeton, Yale, colleges); ii) the heterogenous eastern university, containing a great variety of discordant elements and mirroring the social gamut of the area at large (Penn, Columbia, Harvard); and iii) the heterogeneous western university, which better reflected the surrounding society, as did its eastern counterpart, but because western society was less diverse, offered fewer internal contrasts in practice.

In 1901 Gilman declared: "The spirit of Yale, a mysterious and subtle influence, is the spirit of the hive–intelligence, industry, order, obedience, community, living for others, not for one's self, the greatest happiness in the utmost service". High among these values stood loyalty to one's graduating class.

In contrast Harvard's approach was diversity. "The Harvard students are gathered from all over the world, admitted under allsorts of conditions, and given the most diversified training." Harvard's policy of welcoming Negroes and exerting special effort to secure students from China would have been unthinkable at Princeton.

The western university (e.g., Michigan and Wisconsin) followed neither of the two eastern models. Freer admission policies established the basic structure of its student population as the heterogeneous rather than the cohesive sort. By comparison of with his eastern counterpart, the western collegian remained less sophisticated and in this sense perhaps more "democratic. There were fewer visible extremes of wealth or poverty; the contrast was more often between town and city. At Michigan in 1902 a polls of student parents occupations were 30% business, 22% farmers, 17% nonacademic professionals.

Women in higher education (Oberlin, Michigan, Harvard) (Frederick Rudolph, The American College and University, Ch 15, The University of Georgia Press, Athens, 1962)

Although poor men could sometimes attend the university by working, often as servants of rich students or assistants to faculty members, women of all social classes were excluded from participating. Until the creation of the university, women had had access to schooling, including attending some co-educational schools, but their ability to receive an education comparable to that of men suffered when the creation of a small number of high-powered centers of learning took men away from their hometowns. Women usually were not allowed to leave their families to attend the university, nor were they normally accepted at the university. With the best men gone, the quality of education for those left behind, including women, declined. Naturally some women still received decent schooling, and some even managed to study and teach at the University, but they were the exceptions. Most women had only two choices: marriage or the convent. Thus, while the university opened new professional opportunities for men, it marginalized women further by creating a bigger gap between their educational opportunities and those afforded to men.

In 1837 Oberlin College enrolled four female freshmen and thus inaugurated coeducational higher education for women, offering its young women not only the traditional B.A. course but also a special Ladies Courte the complete of which was recognized by a diploma. Before the Civil War, however, fewer than 6 other American colleges adopted coeducation. The failure of coeducation and of separate women's colleges to make much headway before 1860 should be viewed in the context of those other educational reforms which also remained essentially blocked until after the war: the elective principle, technological education, graduate education, popular practical learning. The extension of women's education was the function of two agencies: the land-grant colleges and state universities where coeducation took hold; and a trio of new women's colleges.

First the University of Iowa in 1855, then the University of Wisconsin in 1863, followed by Indiana, Missouri, Michigan, and California. The massive skepticism, even hostility to higher education for women in the East, crumbed under the impact of a successful demonstration of coeducation at Cornell (1872) and of the opening in close succession of high-grade women's colleges at Vassar, Smith, and Wellesley. In 1879 a group of Harvard professors began to give courses for women outside the university, which was called the Harvard Annex. In 1893 the Annex achieved the full dignity of Radcliffe College.

The meaning of coeducation for the liberal arts college was hidden in enrollment statistics of the college department of the University of Michigan where in 1870 there was one

woman student to 429 men; in 1898 these figures had become 588 women and 745 men. Indeed, the acceleration of female enrollment meant that in 1898, 53% of the BA and PhB degrees awarded that year by Michigan went to women.

Diversity

Harvard was also an early leader in admitting ethnic and religious minorities. Stephen Steinberg, author of The Ethnic Myth, noted that "a climate of intolerance prevailed in many Eastern colleges long before discriminatory quotas were contemplated" and noted that "Jews tended to avoid such campuses as Yale and Princeton, which had reputations for bigotry.... [while] under President Eliot's administration, Harvard earned a reputation as the most liberal and democratic of the Big Three, and therefore Jews did not feel that the avenue to a prestigious college was altogether closed".[18] In 1870, one year into Eliot's term, Richard Theodore Greener became the first African-American to graduate from Harvard College. Seven years later, Louis Brandeis, the first Jewish justice on the Supreme Court, graduated from Harvard Law School.

Though Harvard ended required chapel in the mid-1880s, the school remained culturally Protestant, and fears of dilution grew as enrollment of immigrants, Catholics and Jews surged at the turn of the twentieth century. By 1908, Catholics made up nine percent of the freshman class, and between 1906 and 1922, Jewish enrollment at Harvard increased from six to twenty percent. In June 1922, under President Lowell, Harvard announced a Jewish quota.

The Extracurriculum (Frederick Rudolph, The American College and University, The University of Georgia Press, Athens, 1962, Ch 8

The real drivers of reform were the students, who erected monuments not to the soul of man but to man as a social and physical being. When the students were finished they had planted beside the curriculum an extracurriculum of such dimensions that in time there would develop generations of college students who would not see the curriculum for the extracurriculum.

They began with literary societies, since intellectual objectives were not a priority in the colleges.

Amherst: “Character is of more consequence than intellect.”

Denison: “At college we tend to exaggerate the importance of the intellectual.”

The students began the Greek-letter fraternity movement in Union and Hamilton in the late 1820s and 1830s. Beta Theti Pi founded at Miami in 1839 propagated into Michigan.

Phi Beta Kappa was the direct cause of the appearance of Skull and Bones. In 1832 the Anti-Masonic movement produced attacks on secrecy which involved Phi Beta Kappa. In

protest the valedictorian and 13 other class members formed Skull and Bones.

Football (Frederick Rudolph, The American College and University, The University of Georgia Press, Athens, 1962)

It was McGill University that introduced to Harvard this strange form of soccer in which you could not only pick up the ball, run, and be tackled, but actually even kick it, a game that today has consumed many of our campuses south of the border.

Few movements so captured the colleges and universities. In 1881 Michigan—spurned by Cornell less than 10 years earlier—went East and played Harvard, Yale, and Princeton in a period of less than a week.

Interestingly, Angell joined Andrew White of Cornell in attempting to slow the professionalism of college football. When Michigan students invited Cornell to play its football team in 1873, White replied to Angell: "I will not permit thirty men to travel 400 miles merely to agitate a bag of wind!"23 Thirty years later,

Eliot's view of college sports: "A game that needs to be watched is not fit for genuine sportsmen. It is hard to find trustworthy watchers." He denounced "tyrannical public opinion–partly ignorant, partly barbarous".

A few years later a young president at Miami University required his faculty to go out for the team.

Organized athletics in the American colleges and universities developed a pattern of student-alumni management because the faculty would have nothing to do with athletics. The alumni jumped to the opportunity which student ineffectiveness and faculty indifference gave them. Later, when many faculties recognized what had happened it was too late. In the 1890s the alumni achieved their domination of college and university athletics.

In 1891 created one of the greatest defensive plays of all time. In the middle of the second half the score stood Purdue 44, Wabash 0, when, without so much of a signal from the bench, the young player from Wabash grabbed the ball and sped off the field. Neither he nor another ball could be found, and to this day the official score is 44 to 0, a tribute to rugged individualism.

The 1902 game between Stanford and Michigan in the Rose Bowl was against "hurry up Yost, whose Michigan team compiled 550 points to 0, and was beating Stanford by 49 to 0 in the second half when the Stanford coach wave his exhausted team off the field.

The movement would continue to accelerate until 1905 when the growing brutality and professionalism of the game created an episode typical of the Progressive period. That year

the American public, which was in the process of being aroused by other impurities in the national life, including tainted port, political machines, and trusts, turned its righteousness on football.

Roosevelt demanded that the colleges clean up football. Some colleges gave up football for a decade or more. But when Eliot attempted to abolish football at Harvard, Roosevelt erupted with proper vigor: "I think Harvard will be doing the baby act if she takes any such foolish course."

In 1906, Angell called the formative meeting in Chicago of the Western Conference (later to become the Big Ten Conference), with the intention of reforming the sport. But he suffered an embarrassing end run when Michigan's famous coach Fielding Yost persuaded the regents to withdraw Michigan from the new athletic conference in 1908, because the conference would restrict the outside income of coaches. (Walter Byers observes that it took a decade—and a new board of regents—for Michigan to end this "flirtation with foolishness," restore faculty control of intercollegiate athletics, and rejoin the Western Conference.)

A New Century



In 1900 there were roughly 500 institutions of higher learning in the United States. But most probably did not even deserve the title of "college", much less "university". Only one hundred were capable of producing graduates capable of further study at the graduate or professional level. Furthermore, only a dozen were true universities, at least in the European sense. These would have included most of the charter members of the Association of American Universities: Harvard, Johns Hopkins, Columbia, Chicago, U. California, Clark, Cornell, Catholic U, U. Michigan, Stanford, U. Wisconsin, and U. Pennsylvania, Princeton, and Yale. The largest was Columbia with and enrollment of 6,232 students, followed by Harvard, Chicago, and Michigan with enrollments between 5,500 and 4,000. Of note here was that there were only three public (state) universities on the list: California, Michigan, and Wisconsin. Furthermore, both Clark and Catholic universities were far from university stature and no longer are members of AAU. However Clark Kerr noted that throughout the 20th century there were three "mountain ranges" of institutions of exceptionally high quality: the northeast (the Ivy's), the Big Ten, and California.

Although a few scholars as Abraham Flexner still pointed to Johns Hopkins effort to become a true university, with only education at a graduate level focusing on the generation of new knowledge, by 1930 American universities had moved in a different direction. They were becoming less like a "genuine university, characterized by highness and definiteness of aim, unity of spirit and purpose" and more in the model of the

great public universities of the Midwest, where a collegiate undergraduate program was augmented with a graduate school of the Humboldt character, but then surrounded by professional schools with the strong utilitarian character of the land-grant tradition.

Of course there were back reactions. Robert Hutchins tried to take U. Chicago back to Cardinal Newman–or even Yale's 1828 character. While he succeeded in reviving the philosophic dialog, Chicago went on being a modern American university. Earnest attempts were made to create American counterparts of Oxford and Cambridge at Harvard, Yale, and Princeton: residence halls, student unions, intramural playfields, etc., in sharp contrast to the pure German model which had provided the student with only the profession and the classroom (and which had led Tappan to abolish dormitories at Michigan).

der allsorts of conditions, and given the most diversified training." Harvard's policy of welcoming Negroes and exerting special effort to secure students from China would have been unthinkable at Princeton.

GALLERY 5.7 Founding Institutions of the AAU



Harvard University

1 of 24

Harvard Conservatism (Richard North Smith, The Harvard Century: The Making of a University to the Nation (Simon and Schuster, New York, 19860

In 1858 "Harvard College, as far as it educated at all, was a mild and liberal school which sent young men into the world with all they needed to make respectable citizens, and something of what they wanted to make useful ones. Harvard taught them little, but it left the mind open, free from bias, ig-



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norant of facts, but docile. The graduate had few strong prejudices. He knew little, but his mind remained supple, ready to receive knowledge."

As Trollope put it, Harvard was content to offer more diversified schooling, minus "that old-fashioned, time-honoured, delicious, medieval life which lends so much grace and beauty to our colleges."

In 1869 the institution was a university in name only, "a struggling college with uncertain relations to learning and research"It was not until the presidency of Charles William Eliot that Harvard began to change. "The university must accommodate itself promptly to significant changes in the character of the people for whom it exists."

In 1904 Dean Briggs of Harvard announced his preference for "moderate intelligence" and 15 years later the dean of Yale was advising freshman "A man should not put more than half of his time into his studies."

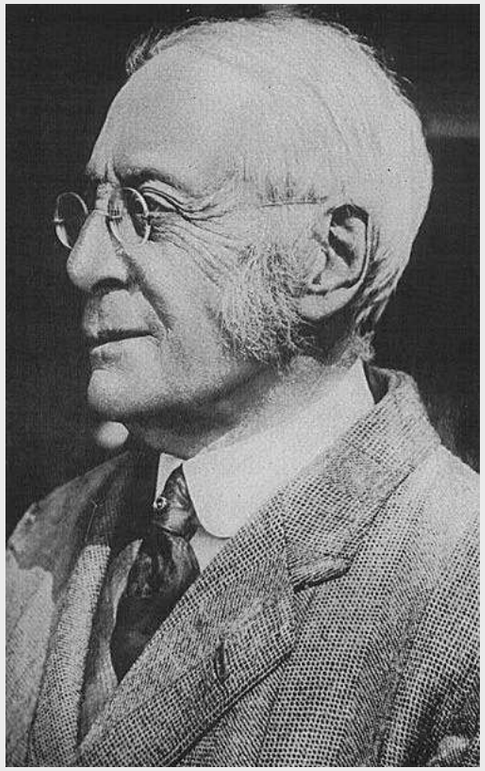
Theodore Roosevelt in dedicating a building at Chicago in 1903 observed "We need to produce not genius, not brilliancy, but the homely, commonplace, elemental virtues. Brilliancy and genius? Yes, if we can have them in addition to the other virtues."

Yale Conservatism (Brooks Mather Kelley, New Haven, Yale University Press, 1974)

Yale argued that men needed a classical course far more than they needed a practical course. "Is it not desirable that the new men of wealth and influence being created by American abundance should be men of superior education, of large and liberal views, of those solid and elegant attainments, which will raise them to a higher distinction. Yale proposed to use the classical curriculum and the colleges for taming the millionaires

Although Timothy Dwight wanted to change the name from Yale College to Yale University in 1870, Porter rejected this. In-

stead in 1872 the Corporation moved that "Yale had attained to the form of a university, but Yale College should be recognized as comprising the four departments of which a University is commonly understood: theology, law, medicine, and philosophy and the arts." Hence while all the ingredients were there, they were not used to make the declaration of the fact with a name change.



Harvard's Charles William Eliot

That Yale could have done otherwise is clear, for in this great age of the rise of universities the major names were Andrew White of Cornell, Charles W. Eliot of Harvard, Daniel Coit Gilman of Johns Hopkins, Frederick Barnard of Columbia…and three of the four were Yale graduates.

Eliot declared, "The manners and customs of the Yale Faculty are those of a porcupine on the defensive. The other colleges were astonished at first, but now they just laugh."

Finally, after the second Timothy Dwight was selected as president, in 1886 the name was changed to Yale University (although ex-president Porter continue to oppose the action). Henceforward Yale College was only the undergraduate liberal arts department of the University.

When the disciplinary outlook finally died, its passing reflected an important shift in American thought. The rationale for the older college had possessed a definiteness, a sharpness of cast, which no longer seemed relevant to an urban, worldly civilization. The collapse of mental discipline marked one of the last of a the long series of declensions from 17th century Puritanism.

Whereas over 20% of the undergraduates at Michigan and Harvard majored in science, only 11% at Yale did so. The science faculty's feeling of neglect was paranoiac. An area of particular difficult for Griswald was engineering. The school suffered from lack of space and outmoded laboratories. There was concern that the connection between engineering, applied science, and pure science was inadequate. It was recommended that the four-year undergraduate curriculum should be placed in a department of engineering and applied science and into Yale College. The program soon lost its accreditation

Time magazine's assessment was "consciously or unconsciously, Yale has traditionally waited for others to lead, observed their course, then picked the middle road to follow."

Benjamin Silliman said, "Let them at Cambridge try experiments, and we will try to profit by them. They are better able to experiment that we are."

The graduates of Yale tended, like the institution itself, to be conservative. They were generally not intellectual leaders but avoided scholarly pursuits for the professions and business. Yet while they may have been conformists, Yale had produced many men who were leaders.

Diversity (continued)

Yet there continued to be great diversity in how universities approached this diversity of roles. In 1901 Gilman declared: "The spirit of Yale, a mysterious and subtle influence, is the spirit of the hive–intelligence, industry, order, obedience, community, living for others, not for one's self, the greatest happiness in the utmost service". (Eliot was not so gracious when he had observed, "The manners and customs of the Yale Faculty are those of a porcupine on the defensive. The other colleges were astonished at first, but now they just laugh.") High among these values stood loyalty to one's graduating class.

There are other such comparisons that have become a part of the legend of the "Ivy Plus" universities. One suggests that while a student at Princeton has everything he might wish put before him on a silver platter, and a student at Harvard has to first look for it (although it is there), Yale pretends that the student must look first, but in practice pushes the plate toward him if he can't find it.

Another comparison is between Harvard and MIT: "A Harvard graduate knows absolutely nothing about absolutely everything, while the MIT graduate knows absolutely everything about absolutely nothing…"

Competing Concepts of the University

John Henry Cardinal Newman, C.O. (21 February 1801 – 11 August 1890),[3][4] often referred to as Cardinal Newman was an important figure in the religious history of England and later education in Ireland. He attended Oxford University, first as a student at Trinity College, then as a Fellow of Oriel College. In 1824 Newman was ordained into the Anglican priesthood and in 1828 appointed vicar of St. Mary's, the university church. His conversion to Catholicism in 1845 forced his departure from Oxford. (For three hundred years, from 1571 to 1871, Oxford was closed to all but Anglicans). Newman was appointed rector of the newly founded Catholic University of Ireland, which he led from 1854 through 1858. He is widely known for his treatise, "The Idea of the University", best known for his eloquent defense of a



John Henry Newman

liberal arts education (in Catholic circles, one would say: of a Catholic education).

"If I were asked to describe as briefly and popularly as I could, what a University was, I should draw my answer from its ancient designation of a Studium Generale, or "School of Universal Learning." This description implies the assemblage of strangers from all parts in one spot;—from all parts; else, how will you find professors and students for every department of knowledge? and in one spot; else, how can there be any school at all? Accordingly, in its simple and rudimental form, it is a school of knowledge of every kind, consisting of teachers and learners from every quarter…"

As gifted as Newman was an orator and writer, as a university administrator he was a failure. His short and troubled tenure was frustrated by the refusal of the Irish state to recognize the degrees conferred by the privately owned university, and Newman was further demoralized by the intrusions of the archbishop of Dublin into university affairs.

Abraham Flexner (1866-1959) was an American educator first noted for his report for the Carnegie Foundation that reformed medical education in the United States and then as the founder the Institute for Advanced Study at Princeton. In the 1930s Flexner turned his attention to the evolution of the American university, stated in his book, "The Idea of a Modern University" that "A university is now outside but inside the general social fabric of a given era. It is not something apart, something historic, something that yields as little as possible to forces and influences that are more or less new. It is on the contrary an expression of the age, as well as an influence operating upon both present and future."

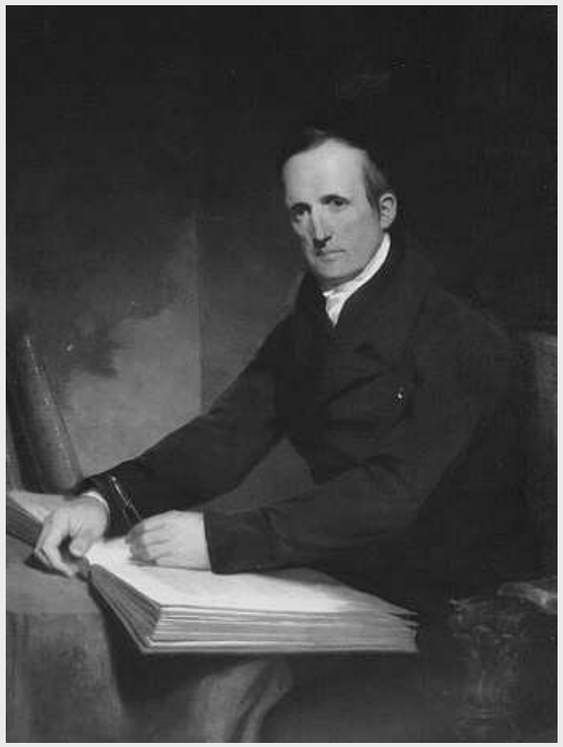


Yale's James Rowland Angell

Flexner believed that the university must became an institution consciously devoted to the pursuit of knowledge, the solution of problems, the critical appreciation of achievement, and the training of men at a really high level. Flexner believed that contemporary universities were involved in too many things, engaged in "incredible absurdities", "a host of inconsequential things", "service stations for the general public".

By 1930 American universities had moved a long way from Flexner's modern university, "where the heart of a university is a graduate school of arts and sciences, the solidly professional schools, and certain research institutions." They were becoming less and less like a "genuine university, character-

ized by highness and definiteness of aim, unity of spirit and purpose".



Yale's Jeremiah Day

Robert Maynard Hutchins (January 17, 1899 – May 17, 1977), was an educational philosopher, dean of Yale Law School (1927-1929), and a president of the University of Chicago (1929–1945) and its chancellor (1945–1951). Hutchins challenged the trends of the progressive and popular movements of American higher education in the mid-20th century, essentially trying to take U. Chicago back to Cardinal Newman. Hutchins was a trenchant critic of modern society, a kind of strand and wonderful throwback to Jeremiah Day and the Yale Report of 1828. In a series of lectures published in 1936, lectures that were sarcastic, bitter, and sometimes funny, he looked at American higher education and found it characterized by disorder, by surrender to an acquisitive society, defined by its trade school, finishing-school qualities. Hutchins was at war with the insidious combination of progress, evolution, and empiricism in jettisoning the past, in promoting adjustment as an ideal, and in substituting vocationalism for thought as the focus of the university.



Chicago's Robert Maynard Hutchins

He proposed a forthright return to the old scholastic curriculum, to the certainties of what he called "the single-minded pursuit of the intellectual virtues." "The heart of any course of study design for the whole people will be the same at any time, in any place, under any political, social, or economic conditions." He viewed Cardinal Newman's "The Idea of a University" (when founding the University of Dublin) as "the high protecting power of all knowledge, favoring liberal knowledge" and regarded useful knowledge as a "deal of trash".

The great-books and general education programs which Hutchins developed at Chicago were evidence of a search for order in a society and world torn by chaos. But Hutchins had a fundamental hostility to the scientific spirit, an effort to revive a discarded metaphysics, a rejection of the climate of freedom which, while capable of creating great chaos, had also built the University of Chicago. While he succeeded in reviv-

ing the philosophic dialog, Chicago went on being a modern American university.

The case for leadership was made by Hutchins, believing that a university needs a purpose, "a vision of the end". Hutchins identified Marcus Aurelius as the best model. But Hutchins was the last of the giants in the sense that he was the last of the university presidents who really tried to change his institution and higher education in any fundamental way. But as he noted, "It is one thing to get things done. It is another to make them last."

There are several other ways to assess this multifaceted character of the American university. From one perspective it was a synthesis of the medieval university, the German research university, and the American land-grant college. From another, it was a merger of the British, German, and American models. But these characteristics continued to evolve. The British focus on the collegiate model lost ground. Largely nonresidential institutions such as community colleges and comprehensive universities became more dominant as universal access has impacted them and as liberal arts colleges have turned "comprehensive" or enrolled a smaller number of students. Yet the German (research) and American (service) models have advanced comparatively in influence. At the same time, the land-grant movement was evolving. These two influences turned out to be more compatible than might at first appear. The one was Prussian, the other American; one elitist the other democratic; one academically pure, the other sullied by contact with the soil and the machine. One looked to Kant and Hegel, the other to Franklin, Jefferson, and Lincoln. But they both served the industrial age through research and training of technical competence. Two strands of history were woven together in the modern American university. "Michigan became a German-style university and Harvard a land. (Kerr, 1963)

The Modern Era

Clark Kerr (May 17, 1911 – December 1, 2003) was an American professor of economics and academic administrator. He was the first chancellor of the University of California, Berkeley and twelfth president of the University of California. (Cristina Gonzalez)

In 1958, Kerr was the Regents' choice to lead the entire university system. His term as UC president saw the opening of campuses in San Diego, Irvine, and Santa Cruz to accommodate the influx of baby boomers. Faced with a dramatic increase of students entering college, Kerr helped establish the now much-copied California system of having the handful of University of California campuses act as 'top tier' research institutions, the more numerous California State University campuses handle the bulk of undergraduate students and the very numerous California Community College campuses provide vocational and transfer-oriented college programs to the remainder.

Controversy exploded in 1964 when Berkeley students led the Free Speech Movement in protest of regulations limiting political activities on campus, including protests against the Vietnam war. It culminated in hundreds of arrested students at a sit-in. Kerr's initial decision was to not expel University of California students that participated in sit-ins off campus. That decision evolved into reluctance to expel students who later would protest on campus in a series of escalating events on the Berkeley campus in late 1964. Kerr was criticized both by students for not agreeing to their demands and by conservative UC Regent Edwin Pauley and others for responding too leniently to the student unrest.[1]



Clark Kerr

Kerr's perceived leniency was key in Reagan's election as Governor of California in 1966[citation needed] and in Kerr's dismissal as president by the university's Board of Regents in 1967. In response, Kerr stated that he left the university just as he entered it: "fired with enthusiasm."

When Clark Kerr unveiled his "multiversity" at Harvard in 1963 as a vast inhuman grid of services and specialties, consultancies and experiments, a Harvard professor noted that "Every time he said university I said shoe industry. It worked just as well!"`

As UC President Clark Kerr once suggested: "A university anywhere can aim no higher than to be as British as possible for the sake of the undergraduates, as German as possible for the sake of the graduates and research personnel, as American as possible for the sake of the public at large–and as confused as possible for the preservation of the whole uneasy balance."

SECTION 7

Michigan Yet Again



The Fleming Administration Building at Michigan

From its founding, the University of Michigan has always been identified with the most progressive forces in American higher education. The early colonial colleges served the aristocracy of colonial society, stressing moral development over a liberal education, much as the English public schools, based on a classical curriculum in subjects such as Greek, Latin, and rhetoric. In contrast, Michigan blended the classical curriculum with the European model that stressed faculty involvement in research and dedication to the preparation of future scholars. Michigan hired as its first professors not classicists but a zoologist and a geologist. Unlike other institutions of the time, Michigan added instruction in the sciences to the humanistic curriculum, creating a hybrid that drew on the best of both a "liberal" and a "utilitarian" education.

Michigan was the first university in the West to pursue professional education, establishing its medical school in 1850, engineering courses in 1854, and a law school in 1859. The university was among the first to introduce instruction in fields as diverse as zoology and botany, modern languages, modern history, American literature, pharmacy, dentistry, speech, journalism, teacher education, forestry, bacteriology, naval architecture, aeronautical engineering, computer engineering, and nuclear engineering.

Throughout its early years, Michigan was the site of many other firsts in higher education. It provided leadership in scientific research by building one of the first university observa-

tories in the world in 1854, followed in 1856 with the nation's first chemistry laboratory building. In 1869 it opened the first university-owned hospital, which today has evolved into one of the nation's largest university medical centers. It continued as a source of new academic programs in higher education into the 20th century. It created the first aeronautical engineering program in 1913, and then followed soon after WWII with the first nuclear engineering (1952) and computer engineering (1955) programs. The formation of the Survey Research Center and associated Institute of Social Research in the 1950s stimulated the quantitative approach that underpins today's social sciences. Michigan was a pioneer in atomic energy, with the first nuclear reactor on a university campus, and then later developed time-sharing computing in the 1960s. In the 1980s it played a leadership role in building and managing the Internet, the electronic superhighway that is now revolutionizing our society. Its influence as an intellectual center today is evidenced by the fact that it has long been one of the nation's leaders in its capacity to attract research grants and contracts from the public and private sector, attracting over $800 million a year in such sponsored research support today.

Throughout its history, the University of Michigan has also been one of the nation's largest universities, vying with the largest private universities such as Harvard and Columbia during the 19th and early 20th centuries, and then holding this position of national leadership until the emergence of the statewide public university systems (e.g., the University of California and the University of Texas) in the post-WWII years. It continues to benefit from one of the largest alumni bodies in higher education, with over 450,000 living alumni. Michigan graduates are well represented in leadership roles in both the public and private sector and in learned professions such as law, medicine, and engineering. Michigan sends more of its graduates onto professional study in fields such as law, medicine, engineering, and business than any other university in the nation. The university's influence on the nation has been profound through the achievements of its graduates.

Michigan students have often stimulated change in our society, but rather through their social activism and academic achievements than their athletic exploits. From the teach-ins against the Vietnam War in the 1960s to Earth Day in the 1970s to the Michigan Mandate in the 1980s, Michigan student activism has often been the catalyst for national movements. In a similar fashion, Michigan played a leadership role in public service, from John Kennedy's announcement of the Peace Corps on the steps of the Michigan Union in 1960 to the AmeriCorps in 1994. Its classrooms have often been battlegrounds over what colleges will teach, from challenges to the Great Books canon to more recent confrontations over political correctness. Over a century ago Harper's Weekly noted that "the most striking feature of the University of Michigan is the broad and liberal spirit in which it does its work." This spirit of democracy and tolerance for diverse views among its students and faculty continues today.

Nothing could be more natural to the University of Michigan than challenging the status quo. Change has always been an important part of the university's tradition. Michigan has long defined the model of the large, comprehensive, public research university, with a serious commitment to scholarship and progress. It has been distinguished by unusual breadth, a rich diversity of academic disciplines, professional schools, social and cultural activities, and intellectual pluralism. The late Clark Kerr, the president of the University of California, once referred to the University of Michigan as "the mother of state universities," noting it was the first to prove that a high-quality education could be delivered at a publicly funded institution of higher learning.

Interestingly enough, the university's success in achieving such quality had little to do with the generosity of state support. From its founding in 1817 until the legislature made its first appropriation to the institution in 1867, the university was supported entirely from its federal land grant endowment and the fees derived from students. During its early years, state government actually mismanaged and then misappropriated the funds from the Congressional land grants intended to support the university. The university did not receive direct state appropriations until 1867, and for most of its history, state support has actually been quite modest relative to many other states. Rather, many (including the author) believe that the real key to the university's quality and impact has been the very unusual autonomy granted the institution by the state constitution. The university has always been able to set its own goals for the quality of its programs rather than allowing these to be determined by the vicissitudes of state policy, support, or public opinion. Put another way, although the university is legally "owned" by the people of the state, it has never felt obligated to adhere to the priorities or whims of a particular generation of Michigan citizens. Rather, it viewed itself as an enduring social institution with a duty of stewardship to generations past and a compelling obligation to take whatever actions were necessary to build and protect its capacity to serve future generations. Even though these actions might conflict from time to time with public opinion or the prevailing political winds of state government, the university's constitutional autonomy clearly gave it the ability to set its own course. When it came to objectives such as program quality or access to educational opportunity, the university has always viewed this as an institutional decision rather than succumbing to public or political pressures.

This unrelenting commitment to academic excellence, broad student access, and public service continues today. In virtually all national and international surveys, the university's programs rank among the very best, with most of its schools, colleges, and departments ranking in quality among the top ten nationally and with several regarded as the leading programs in the nation. Other state universities have had far more generous state support than the university of Michigan. Others have had a more favorable geographical location than

"good, gray Michigan." But it was Michigan's unusual commitment to provide a college education of the highest possible quality to an increasingly diverse society–regardless of state support, policy, or politics–that might be viewed as one of the university's most important characteristics. The rapid expansion and growth of the nation during the late 19th and early 20th centuries demanded colleges and universities capable of serving all of its population rather than simply the elite as the key to a democratic society. Here Michigan led the way in both its commitment to wide access and equality and in the leadership it provided for higher education in American.

Along with the University of Wisconsin, the University of Michigan hinted at the potential the state universities of the upper Midwest possessed to gain national stature as full-fledged modern universities. Whereas Wisconsin had a tradition of support and appreciation within its host state, the University of Michigan survived years of neglect from its state legislature and made great gains in the latter decades of the 19th century. Perhaps more than any other state university it initiated a program that made the campus the coordinating center of the entire state public school system. The lynchpin of the UM "certificate system" was that any graduate of a certified high school was guaranteed admission to the University of Michigan.

Particularly notable here was the role of Michigan President James Angell in articulating the importance of Michigan's commitment to provide "an uncommon education for the common man" while challenging the aristocratic notion of leaders of the colonial colleges such as Charles Eliot of Harvard. Angell argued that Americans should be given opportunities to develop talent and character to the fullest. He portrayed the state university as the bulwark against the aristocracy of wealth. Angell went further to claim that "the overwhelming majority of students at Michigan were the children of parents who are poor, or of very moderate means: that a very large portion have earned by hard toil and by heroic self-denial the amount needed to maintain themselves in the most frugal manner during their university course, and that so far from being an aristocratic institution, there is no more truly democratic institution in the world." To make a university education available to all economic classes, for many years tuition and fees at the university remained minimal. As President Angell put it, "The whole policy of the administration of the university has been to make life here simple and inexpensive so that a large portion of our students can support themselves." This commitment continues today, when even in an era of severe fiscal constraints, the university still meets the full financial need of every Michigan student enrolling in its programs.

The effectiveness of the state universities in giving expression and a new dynamism to the Jeffersonian position certainly accounted in part for the defensive posture taken by President Eliot: "There is a skepticism of the masses in Massa-

GALLERY 5.8 The evolution of the Michigan campus



The early Michigan campus along State Street (1870)

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chusetts as to the justice of everybody paying for the advanced education of somebody's child. Why should a mechanic, blacksmith, or weaver pay for the professional education of a lawyer's son?"

President's Eliot's great antagonist, in a sense, was President Angell at Michigan, who gladly served as an agent of the state universities before the American public. Angell argued that all human beings should be given opportunities to develop talent and character to the fullest. "We need all the intelligence, all the trained minds we can have". The state university was a bulwark against the aristocracy of wealth: it was the inevitable and necessary expression of a democratic society; it was Christian equality in action.

Angell could not conceive "anything more hateful, more repugnant to our natural instincts, more calamitous at once to learning and to the people, more unrepublican, more undemocratic, more unchristian that a system which should confine the priceless boon of higher education to the rich."

As historian Frederick Rudolph suggests, it was through the leadership of the University of Michigan after the Civil War, joined by the University of Minnesota and the University of Wisconsin, that the state universities in the Midwest and West would evolve into the inevitable and necessary expression of a democratic society. Frontier democracy and frontier material-

serving all of the people of a rapidly changing America through education, research, and public service. As Rudolph notes, these institutions attempted to "marry the practical and the theoretical, attempting to attract farm boys to their classrooms and scholars to their faculties."

The university has long placed high value on the diversity of its student body, both because of its commitment to serve all of society, and because of its perception that such diversity enhanced the quality of its educational programs. From its earli-

est years, Michigan sought to attract students from a broad range of ethnic and geographic backgrounds. By 1860, the regents referred "with partiality" to the "list of foreign students drawn thither from every section of our country." Forty-six percent of the university's students then came from other states and foreign countries. Michigan awarded the first doctorate to a Japanese citizen who later was instrumental in founding the University of Tokyo. President Angell's service in 1880-81 as United States Envoy to China established further the university's great influence in Asia.

The first African American students arrived on campus in 1868. Michigan was one of the first large universities in America to admit women in 1870. At the time, the rest of the nation looked on with a critical eye, certain that the experiment of co-education would fail. Although the first women students were true pioneers, the objects of intense scrutiny and some resentment, by 1898 the enrollment of women had increased to the point where they received 53 percent of Michigan's undergraduate degrees, roughly the same percentage they represent today.

One of Michigan's most important contributions to the nation may be its commitment to providing an education of exceptional quality to students from all backgrounds. In many ways, it was at the University of Michigan that Thomas Jefferson's enlightened dreams for the public university were most faithfully realized. Whether characterized by gender, race, socioeconomic background, ethnicity, or nationality–not to mention academic interests or political persuasion–the university has always taken great pride in the diversity of its students, faculty, and programs. Its constitutional autonomy enabled it to defend this commitment in the face of considerable political resistance to challenging the status quo, eventually taking the battle for diversity and equality of opportunity all the way to the United States Supreme Court in the landmark cases of 2003. In more contemporary terms, it seems clear that an important facet of the institutional saga of the University of Michigan would be its achievement of excellence through diversity.

It is important to remember a truth that each individual university is tempted to deny. The major research universities of the United States are, in many respects, all alike, and they seem to have become more alike during this past half century. Senior in years to Wisconsin and Berkeley, its only two intellectual peers among public universities, Michigan was decidedly more "eastern" in style and in composition. But Michigan was also more egalitarian than its eastern, private counterparts. Michigan stood culturally midway between the Ivy and what we now call the Big Ten, displaying some of the stereotypical features of each. This image of a national, cosmopolitan university was largely sustained in the character, scope, and stature of its academic programs. Michigan was an extremely well-established research university.

Throughout the 20th century the University of Michigan became known for one achievement above all others: for managing to perform reasonably well virtually every function major universities are expected to perform. This distinction for a single campus is more worthy of notice that it might first appear. Princeton has no schools of medicine, music, art, public health, education, natural resources, social work, nursing, or law. Johns Hopkins has long regarded undergraduates as inconvenient obstacles to faculty research. When Clark Kerr celebrated "the multiversity" in 1963, he described Michigan just as accurately as he did his own Berkeley.

Michigan, then, is surely one the most persistently generic of the major universities in the United States. Moveover Michigan helped to invent the modern American university, after all, when the Ivies were still denominational colleges. Michigan has been historically content to exemplify the university "whole" rather than to particularize it. While Princeton, Harvard, and Yale have manufactured and sustained campus lore, constantly reinforcing their own particularity, building upon traditions of undergraduate exclusivity, Michigan has instead identify itself with ideals common to institutions of higher higher learning.

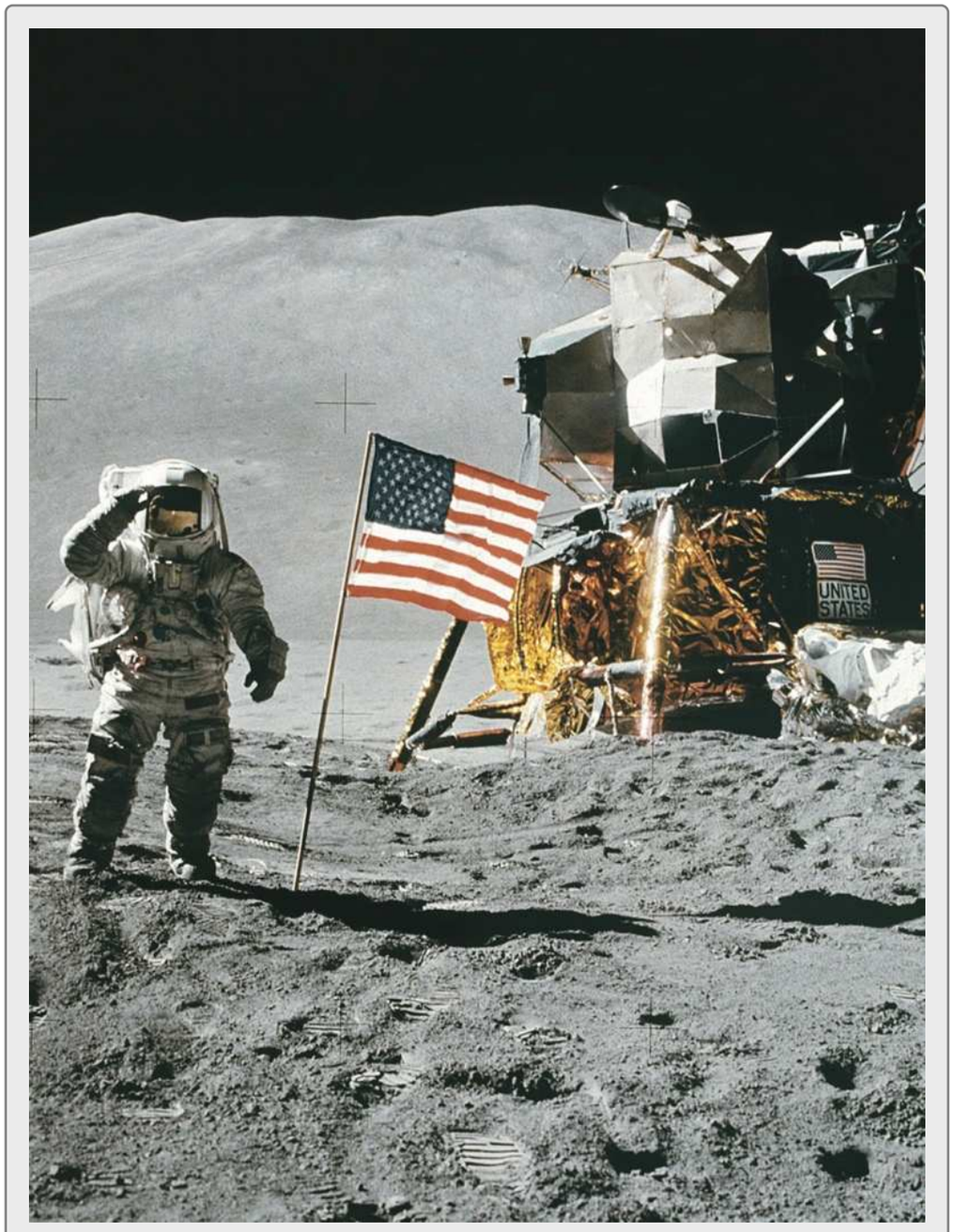
During the post War decades, Michigan was a major site of the entrepreneurial transformation of American academia, and was simultaneously a major site of the intellectual revolutions in American social science associated with behaviorial perspectives and quantitative methods. The openness of Michigan's administrative structure to the development of centers and institutions funded by outside sources is both an emblem for and a source of Michigan's pluralism, with the Institute for Social Research a prime example. If Michigan soon became the most entrepreneurial of America's universities in the social sciences, it was due to these founders. Michigan was characterized by "mainstream academic professionalism", a suspicion of grand theory and of epistemological quibbling, a preference for concrete and clearly manageable projects, and above all, attention to aspects of the social sciences and humanities least likely to be mistaken for political advocacy, cultural criticism, or journalism. The Michigan that had come into being by the late 195s and early 1960s was a might engine of scholarship and science of just this type.

Michigan is a more impressive university as a whole than in those of its parts that are measured by conventional indices of excellence. The principled constraint has been the University's effort to govern itself by the standard academic values of free and open inquiry, veracity, objectivity, reasoned argument, and reliance on evidence. If this loyalty to the standard academic ethic has helped Michigan to resist or welcome different initiatives, a more decisive influence in shaping the University appears to have been chance, e.g, which department or school has been in possession of a basic vision and leadership when funds are available. Multitudinous, sprawling, decentralized, contingent, imperfect, Michigan retains its capac-

ity to inspire. That capacity derives not from any claims to uniqueness but from its strivings toward cosmopolitanism, from the enormous range of learned pursits and doctrines available here.

If there is a Michigan mystique, it is more democratic than exclusive, more egalitarian that hierarchical; it is a mystique ore of pluralism than of uniqueness of any sort. Michigan's tradition is pre-eminently national rather than local. The chiefly historical significance of the University of Michigan is an embodiment of the national academic culture, as an institution successfully devoted to both excellence and comprehensiveness.

The Endless Frontier



Apollo 15, "the Michigan mission to the moon"!

The research university emerged as a powerful new entity that earned international respect for American scholarship. The public junior college flourished as a new, distinctively American institution. Vocational institutions and trade schools appeared. Rapid growth characterized the 1950s and 1960s…from 1.5 M students in 1940 to 2.7 M in 1950 to 3.6 M in 1960 to 7.9 M in 1970.

World War II provided the incentive for even greater activity as the universities became important partners in the war effort, achieving scientific breakthroughs in areas such as atomic energy, radar, and computers. During this period our universities learned valuable lessons in how to develop and transfer knowledge to society and how to work as full partners with government and industry to address critical national needs. In the postwar years, a new social contract evolved that led to a partnership between the federal government and the American university aimed at the support and conduct of basic research. This led to a new institutional form, the American research university.

Much of this was driven by the Servicemen's Readjustment Act of 1944, designed to provide social stability as the WWII veterans returned (and not so much to provide educational opportunity). Few expected very much from this. But by 1946 GI enrollments passed 1 million. By 1950 more than 2 million, or 16% of had opted to enroll in postsecondary education through the GI Bill. What was notable about the program?

Gallery 5.9 The American University in Wartime



Michigan's President Tappan addressing Civil War crowd

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First it was an entitlement with no limit on the number of applicants. Second, tuition and benefits payments were portable. The catch, however, was that the institution had to be federally approved, which created accreditation through regional accreditation associations. Finally the GIs were older and more pragmatic, hardworking, and in a hurry to complete their degrees. Despite the unexpected appeal and success of the GI Bill, neither its advocates or critics viewed it as a permanent program. Yet it did stimulate federal financial aid programs.

The other major area of federal policy was represented by Vannevar Bush's Science, the Endless Frontier. The seminal report, Science, the Endless Frontier, produced by a World War II study group chaired by Vannevar Bush, stressed the importance of this partnership: "Since health, well-



Vannevar Bush

At the heart of this partnership was the practice of federal support of competitive, peer-reviewed grants, and a framework for contractual relationships between universities and government sponsors. In this way the federal government supported university faculty investigators to engage in research of their own choosing in the hope that significant benefits would accrue to American society in the forms of military security, public health, and economic prosperity.

The basic structure of the academic research enterprise of the past half-century was set out in the Bush report some fifty years ago. The central theme of the document was that the nation's health, economy, and military security required continual deployment of new scientific knowledge and that the federal government was obligated to ensure basic scientific progress and the production of trained personnel in the national interest. It insisted that federal patronage was essential for the advancement of knowledge. It stressed a corollary principle—that the government had to preserve "freedom of inquiry," to recognize that scientific progress results from the "free play of free intellects, working on subjects of their own choice, in the manner dictated by their curiosity for explanation of the unknown."

Since the federal government recognized that it did not have the capacity to manage effectively either the research universi-

tively unrestricted grants to support part of the research on campus, with the hope that "wonderful things would happen." And, indeed they did, as evidenced by the quality and impact of academic research.

Federal support was channeled through an array of federal agencies: basic research agencies such as the National Science Foundation and the National Institutes of Health; mission agencies such as the Department of Defense, the Department

GALLERY 5.10 Activities of the Research University



The nuclear reactor at the Michigan Memorial Phoenix Project

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of Energy, the National Aeronautics and Space Administration, and the Department of Agriculture; and an assortment of other federal units such as the Departments of Commerce, Transportation, and Labor. In most cases, the mechanism used to support research was the merit-reviewed research grant, where faculty submit unsolicited proposals detailing the research they were interested in conducting. The funding agency then asks various experts, including peers of the investigators, to review the proposal and evaluate its quality and

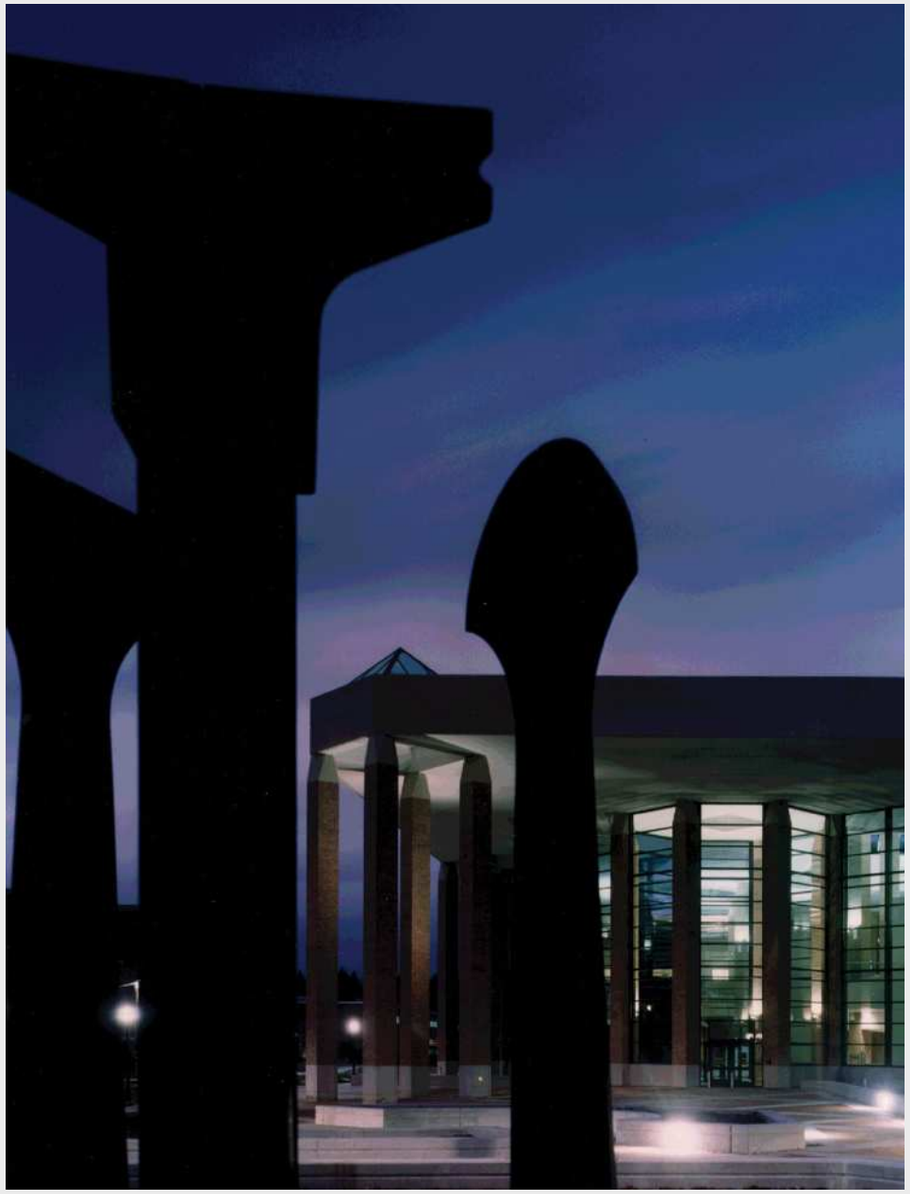
importance. Based on this review and available funding, the agency then decides whether to fund the work or decline the proposal. If the decision were to fund, a grant would be provided to the host institution for the support of the work, typically for a one to several-year period.

Although grants arising from unsolicited proposals were the most common form of support, some funding agencies did approach select institutions with requests-for-proposals to conduct research directed toward specific needs. For example, NASA might seek a particular type of scientific instrument for a space mission, or the Department of Defense might need a better understanding of radar reflection from unusual aircraft wing geometries. Such procured research was usually provided through research contracts between the agency and the host institution rather than through relatively unrestricted grants.

The resulting partnership between the federal government and the nation's universities has had an extraordinary impact. Federally supported academic research programs on the campuses have greatly strengthened the scientific prestige and performance of American research universities. The research produced on our campuses has had great impact on society. This academic research enterprise has played a critical role in the conduct of more applied, mission-focused research in a host of areas including health care, agriculture, national defense, and economic development. It has made America the world's leading source of fundamental scientific knowledge. It has produced the well-trained scientists, engineers, and other professionals capable of applying this new knowledge. And it has laid the technological foundations of entirely new industries such as electronics and biotechnology.

SECTION 9

American Universities Today



The North Campus of the University of Michigan

Higher education in the United States today is characterized both by its great diversity and an unusual degree of institutional autonomy–understandable in view of the limited role of the federal government in postsecondary education. As The Economist notes, "The strength of the American higher education system is that it has no system." (The Economist, 2005) In the United States our colleges and universities, both public and private, are relatively free from government control, at least compared to institutions in other nations. We have no ministry of higher education or national system of education, relatively few federal regulations, and essentially no broad federal higher education policies.

The American university's constituencies are both broad and complex and include as clients of university services not only students but also patients of its hospitals; federal, state, and local governments; business and industry; and the public at large (e.g., as spectators at athletic events). To address this diversity—indeed, incompatibility—of the values, needs, and expectations of the various constituencies served by higher education, the United States has encouraged a highly diverse array of tertiary educational institutions to flourish. From small colleges to immense multi-campus universities, religious to secular institutions, vocational schools to liberal arts colleges, land-grant to urban to national research universities, public to private to for-profit universities, there is a rich diversity both in the nature and the mission of America's roughly 3,600 post-secondary institutions.

In America, our colleges and universities, both public and private, are relatively free from government control, at least compared to institutions in other nations. Many nations have approached mass education by creating a uniform educational system constrained by the lowest common denominator of quality. American colleges and universities are intensely competitive, seeking to attract the most outstanding students and faculty, along with resources from the public and private sector. Our educational institutions are unusually responsive to the needs of society, spawning missions and programs to position themselves better for their societal role.

More generally, the strength of American higher education depends upon characteristics such as:

- The great diversity among institutions and missions.
- The balance among funding sources (private vs. public,
- The influence of market forces (for students, faculty, resources, reputation).
- Its global character (attracting students and faculty from around the world)
- A limited federal role that leads to highly decentralized, market-sensitive, and agile institutions, students, and faculty.

GALLERY 5.11 Contemporary Scenes from Michigan



The University of Michigan's North Campus

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- Supportive public policies (academic freedom, institutional autonomy, tax and research policies).
- The research partnership between universities, the federal government, and industry.

The growth in the American higher education enterprise over the last several decades has been exceptional. From an enrollment of 3 million students and a $7 billion expenditure in 1960, higher education in the United States today enrolls over



15 million students and spends over $180 billion per year. The majority of this growth has been due to public colleges and universities, which today enroll over 80 percent of all college students.

The diversity of our society leads not only to great diversity in the character of institutions, but also to remarkable diversity in how institutions respond to a changing society. For example, community colleges and regional four-year public universities tend to be closely tied to the needs of their local com-

higher education, and they tend to respond very rapidly to

finalis valued and largely intact. However, they too have had

constraints. In recent years many of these colleges have provided leadership in constraining costs and even reducing tuition levels.

The research university, because of the complexity of its multiple missions, its size, and its array of constituencies, tends to be most challenged by change. While some components of these institutions have undergone dramatic change in recent years, notably those professional schools tightly coupled to society such as medicine and business administration, other parts of the research university continue to function much as

they have for decades. They have been largely insulated from

able resources of political influence.

In reality, however, institutional roles are far more mixed. It is true that community colleges serve primarily local communities, but they provide quite a broad range of educational services, ranging from two-year associate degrees to highly specialized training. They also provide an increasing amount of postgraduate education to individuals currently holding baccalaureate degrees who wish to return to a college in their community for later specialized education in areas such as computers or foreign languages.

Many small liberal arts colleges strongly encourage–in some case, even pressure—their faculty to be active scholars, seek-



ing research grants and publishing research papers in addition to teaching. Certainly too, many four-year colleges have added graduate programs and adopted the title "university" in an effort both to serve regional interests and to acquire visibility and prestige. At the other end of the spectrum, many research universities have been forced to take on significant responsibilities in remedial education at the entry level, particularly in areas such as language skills and mathematics, as a result of the deterioration of K–12 education. Many have even



moved directly into the K–12 education arena, creating and managing charter schools or even entire school systems. These trends will only increase an already significant blurring of roles among various types of institutions.

The manner in which American higher education is supported is highly diverse, complex, and frequently misunderstood. It benefits from a remarkable balance among funding sources, with roughly 25% from the federal government, 20% from the states, and 55% from private sources (tuition, philanthropy). In the simplest sense, today the United States spends roughly 2.6% of its GDP on higher education ($350 B), with is supported at about twice the level ($20,545 per year) as it is in Europe. (OECD, 2008) There is a caveat here, however, since roughly half of this cost is associated with non-instructional activities such as research, health care, agricultural extension, and economic development–missions unique to American universities. After subtracting the sources earmarked for nonacademic missions, one finds that the actual instructional costs of American higher education today are quite comparable to many European nations.

CHAPTER 6

American Universities Today



"In the United States, the primary source of the new knowledge and talented individuals who apply it to achieve our security, health, prosperity, and other national goals, continues to be the basic research and graduate education programs of our nation's research universities. America's research universities, with the strong and sustained support of government and working in partnership with American industry and philanthropy, are widely recognized as the best in the world, admired for both their research and education." (National Academies Study on the Future of the American Research University, 2012)

A Gallery of American





Gallery 6.2 The Great Lakes



University of Michigan

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Gallery 6.3 Eastern Universities



University of Vermont

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Gallery 6.4 Southern Universities



University of Maryland

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Gallery 6.5 Midwestern Universities



University of Missouri

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CHAPTER 7

Universities Around the World



"The university is an European Institution; indeed, it is the European institution par excellence. No other European institution has spread over the entire world in the way in which the traditional form of the European university has done. The degrees awarded by European universities, the bachelor's degree, the licentitate, the master's degree, and the doctorate, have been adopted by most diverse societies throughout the world." (Ruegg, 1992)

A Gallery of Universities Around the World



Gallery 7.1 Britain and Ireland



Oxford University

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Gallery 7.4 Germany



Humboldt University, Berlin

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Gallery 7.5 Europe



University of Vienna

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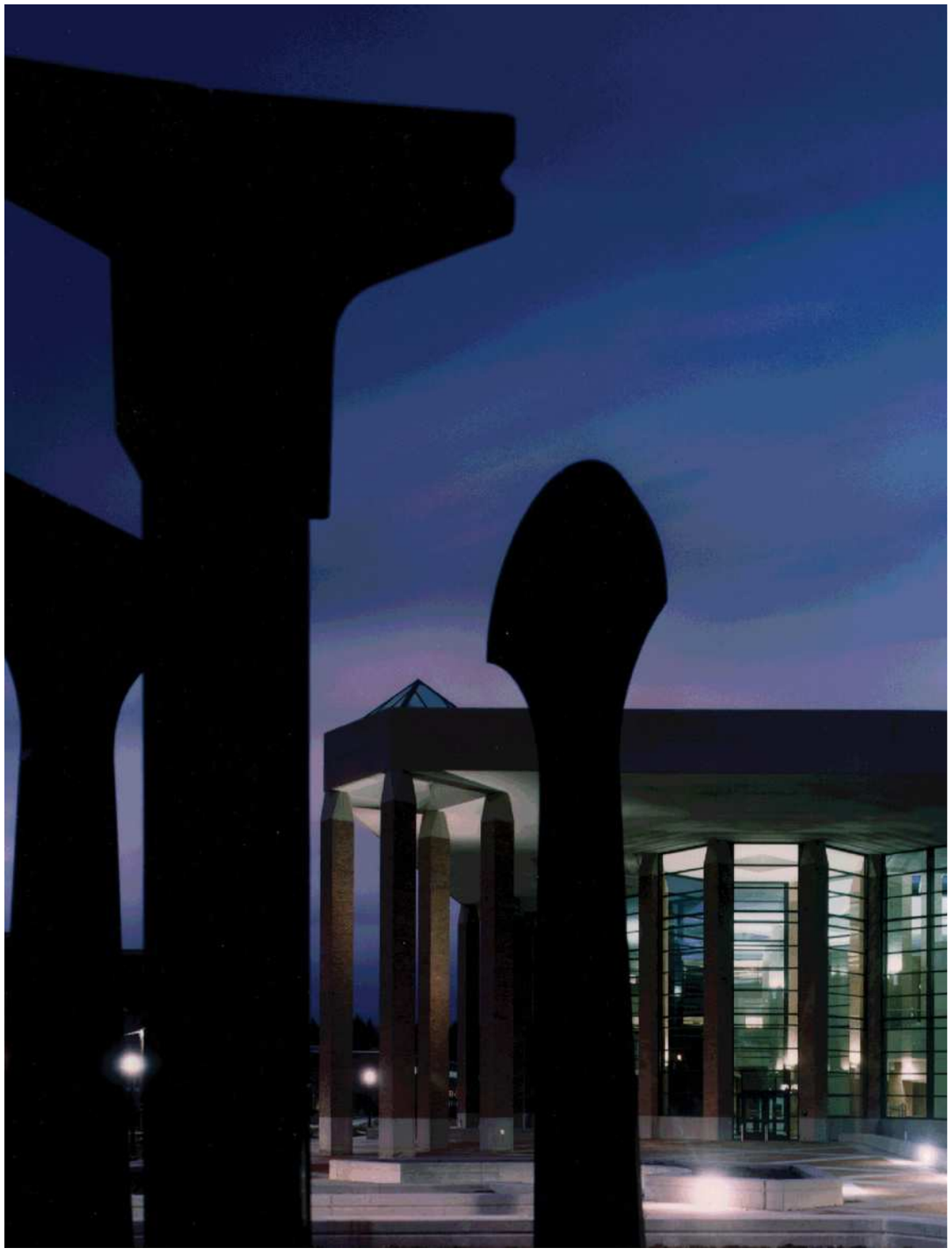






CHAPTER 8

Game Changers and Paradigm Shifts



"For a thousand years the university has benefited our civilization as a learning community where both the young and the experienced could acquire not only knowledge and skills but also the values and discipline of the educated mind. It has defended and propagated our cultural and intellectual heritage, while challenging our norms and beliefs. The university of the twenty-first century may be as different from today's institutions as the research university is from the colonial college. But its form and its continued evolution will be a consequence of transformations necessary to provide its ancient values and contributions to a changing world" (Rhodes, 1999).

Game Changers



Addressing the European University Association

As we look even further into an unknowable future, the possibilities and uncertainties become even more challenging. How will wealth be created and value added in this global, knowledge-driven economy? While many regions (e.g., Bangalore, Shanghai) will prosper with exceptionally high-quality specialization in knowledge-intensive services and low-cost commodity manufacturing, the United States is unlikely to be competitive here, whether because of our high standard of living (and high wage) requirements or population limitations. Instead we will have to stress our capacity to innovate and create, derived from an unusually diverse, market-driven, democratic culture. Although we will still "make things", we will do so by organizing the financial and human capital on a global level.

But many other possibilities remain. Will increasingly robust communications technologies (always on, always in contact, high-fidelity interaction at a distance) stimulate the evolution of new types of communities (e.g., self-organization, spontaneous emergence, collective intelligence, "hives")? Suppose info-bio-nano technologies continue to evolve at the current rate of 1,000 fold per decade. Can we really prepare today's kids for the world of several decades from now when technologies such as neural implants, AI "mind children", sim-stim, and such may actually exist? During the 20th century, the lifespan in developed nations essentially doubled (from 40 to 80 years). Suppose it happens again in the 21st century?

More generally, it is clear that as the pace of change continues to accelerate, learning organizations and innovation systems will need to become highly adaptive if they are to survive. Here, we might best think of future learning and innovation environments as ecologies that not only adapt but mutate and evolve to serve an ever-changing world.

Such future challenges to the Midwest's prosperity and social well-being call for bold initiatives. It is not enough to simply build upon the status quo, for example by doubling the number of post-secondary degree recipients or guaranteeing at a minimum a community college education for all. Instead, it is important that the Midwest consider bolder visions that exploit truly over-the-horizon opportunities and visions. To this end, we conclude this roadmapping exercise by speculating about possible game changers that would challenge the current educational infrastructure of the Midwest region and demand paradigm shifts in its learning and innovation infrastructure.

Restructuring of the Higher Education Enterprise

Universities serve as the gatekeepers not only for the definition of the academic disciplines and membership in the academy, but as well controlling entry to the professions that so dominate contemporary society. While there has been competition among institutions for students, faculty, and resources—at least in the United States—the extent to which institutions control the awarding of degrees has led to a tightly controlled competitive market. Furthermore, most colleges and universities serve primarily local or regional areas, where they have particularly strong market positions. As with most monopoly organizations, today's university is provider-centered, essentially functioning to serve the needs and desires of the faculty rather than the students they teach or the broader society that supports them.

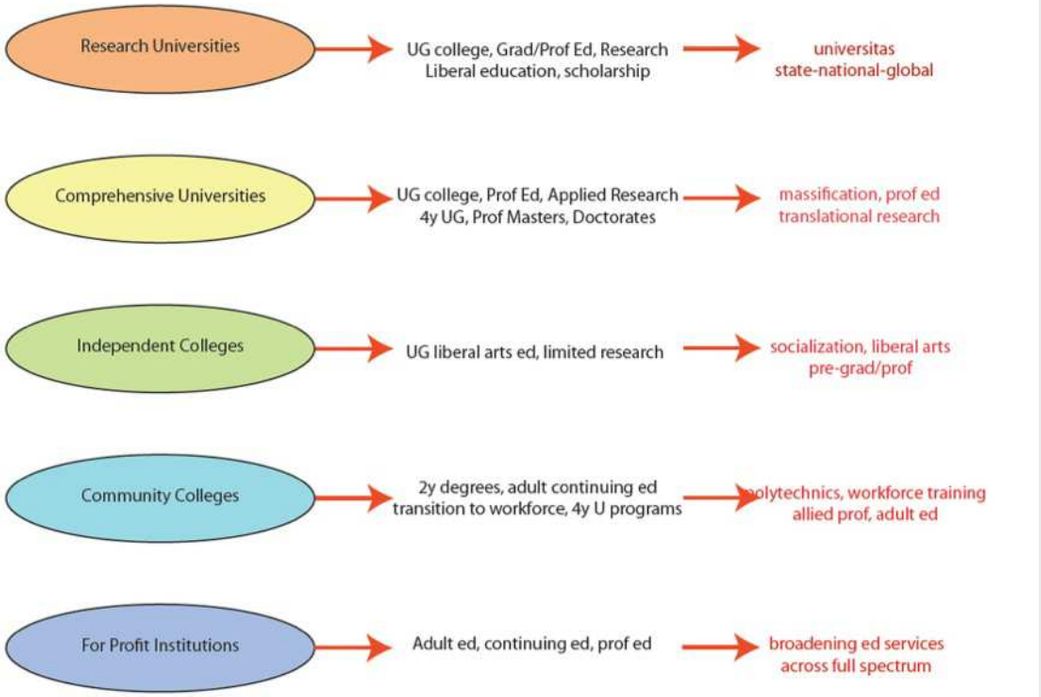
Today this monopoly character is being strongly challenged, however. No university can control the growth of knowledge or the educational needs of a society. Information technology is rapidly eliminating the barriers of space and time that have largely shielded campus activities from competition. As the need for advanced education becomes more intense, there are already signs that some institutions are responding to market forces and moving far beyond their traditional geographical areas to compete for students and resources. There are hundreds of colleges and universities that increasingly view themselves as competing in a national or even international marketplace. Even within regions such as local communities, colleges and universities that used to enjoy a geographical monopoly now find that other institutions are establishing beachheads through extension services, distance learning, or even branch campuses. With advances in communication, transportation, and global commerce, several universities in the United States and abroad increasingly view themselves as international institutions, competing in the global marketplace.

Beyond competition among colleges and universities, there are new educational providers entering the marketplace.1 Sophisticated for-profit entities such as the Apollo Group (i.e., University of Phoenix) and Laureate are moving into markets throughout the United States, Europe, and Asia. Already hundreds of Internet-based institutions are listed in college directories with over two million students enrolled in their programs, including major efforts such as the Western Governors University. It has been estimated that today there are over one thousand corporate training schools in the United States providing both education and training to employees at the college level. Industry currently spends over $200 billion per year on corporate training. And, of course, the OpenCourseWare movement and resources such as iTunes U are providing free access to Internet-based courses to millions around the world.

Although traditional colleges and universities enjoy competitive advantages based upon long-standing reputations and control of accreditation and credentialing, these could be eroded quite rapidly by the vast resources from capital markets that the industrial sector is capable of focusing on these efforts. Furthermore, the higher comfort level of industry with technology, intensely competitive marketplaces, strategic alliances, and rapid decision making could prove to be decisive advantages. Finally, with access to the vast resources of capital markets and unhindered by other social commitments or public governance, for-profit providers could cherry pick the best faculty and most attractive products (learning software, courses, or programs) from traditional educational institutions. The competitive threat is very real.

The faculty has long been accustomed to dictating what it wishes to teach, how it will teach it, and where and when the learning will occur. Students must travel to the campus to learn. They must work their way through the bureaucracy of university admissions, counseling, scheduling, and residential living. And they must pay for the privilege, with little of the power of traditional consumers. If they navigate through the maze of requirements, they are finally awarded a certificate to recognize their experience—a college degree. This process is sustained by accrediting associations, professional societies, and state and federal governments.

This carefully regulated and controlled enterprise could be eroded by several factors. First, the great demand for advanced education and training cannot be met by such a carefully rationed and controlled enterprise. Second, the expanding marketplace will attract new competitors, exploiting new learning paradigms, and increasingly threatening traditional providers. And perhaps most important of all, newly emerging information technology has not only eliminated the constraints of space and time, but it is also transforming students into learners and consumers. Open education resources are providing learners with choice in the marketplace—access to learning opportunities, knowledge-rich networks and digital



The evolution and differentiation of higher education institutions

libraries, collections of scholars and expert consultants, and other mechanisms for the delivery of learning.

The evolution from faculty-centered and -controlled teaching and credentialing institutions to distributed, open learning environments is already happening. The new learning services are increasingly available among many providers, learning agents, and intermediary organizations. Such an open, network-based learning enterprise certainly seems more capable of responding to the staggering demand for advanced education, learning, and knowledge. It also seems certain not only to provide learners with far more choices but also to create far more competition for the provision of knowledge and learning services.

As a result, higher education is likely to evolve from a loosely federated system of colleges and universities serving traditional students from local communities to, in effect, a global knowledge and learning industry. With the emergence of new competitive forces and the weakening influence of traditional regulations, education is evolving like other "deregulated" industries, for example, health care, or communications, or energy. Yet, in contrast to these other industries that have been restructured as government regulation has disappeared, the global knowledge industry will be unleashed by emerging information technology as it releases education from the constraints of space, time, and the credentialing monopoly. And, as our society becomes ever more dependent upon new knowledge and educated people, upon knowledge workers, this global knowledge business will represent one of the most active growth industries of our times.3

Many in the academy undoubtedly view with derision or alarm the depiction of the higher education enterprise as an "industry" or "business." After all, higher education is a social institution with broader civic purpose and not traditionally driven by concerns about workforce training and economic development. Furthermore, the perspective of higher education as an industry raises concerns that short-term economic and political demands will dominate broader societal

responsibilities and investment. Yet, in an age of knowledge, the ability of the university to respond to social, economic, and technological change will likely require a new paradigm for how we think about postsecondary education. No one, no government, is in control of the emerging knowledge and learning industry; instead it responds to forces in the marketplace. Universities will have to learn to cope with the competitive pressures of this marketplace while preserving the most important of their traditional values and character.

Lifelong Learning

The needs for lifelong learning opportunities in a knowledge society are manifold. The shelf life of education early in one's life, whether K-12 or higher education, is shrinking rapidly in face of the explosion of knowledge in many fields. Today's students and tomorrow's graduates are likely to value access to lifelong learning opportunities more highly than job security, which will be elusive in any event. They understand that in the turbulent world of a knowledge economy, characterized by outsourcing and off-shoring to a global workforce, employees are only one paycheck away from the unemployment line unless they commit to continuous learning and re-skilling to adapt to every changing work requirements. Furthermore, longer life expectancies and lengthening working careers create additional needs to refresh one's knowledge and skills from time to time. And, just as students increasingly understand that in a knowledge economy there is no wiser personal investment than education, many nations now accept that the development of their human capital through education must become a higher priority than other social priorities, since this is the only sure path toward prosperity, security, and social well-being in a global knowledge economy.

Just as in earlier critical moments in our nation's history when federal initiatives expanded the role of education, e.g. the Land Grant Acts in the 19th century to provide higher education to the working class, universal access to secondary education in the early 20th century, and the G. I. Bill enabling the college education of the returning veterans of World War II, today a major expansion of educational opportunity could have extraordinary impact on the future of the nation. It is time for the United States to take bold action, completing in a sense the series of these earlier federal education initiatives, by providing all American citizens with universal access to lifelong learning opportunities, thereby enabling participation in the world's most advanced knowledge society.

Of course, establishing as a national goal the universal access to lifelong learning would require not only a very considerable transformation and expansion of the existing postsecondary education enterprise, but it would also require entirely new paradigms for the conduct, organization, financing, leadership, and governance of higher education in America. For example, most of today's colleges and universities are primarily designed to serve the young–either as recent high school

graduates or young adults early in their careers. Yet achieving the objective of universal access to lifelong learning would expand enormously the population of adult learners of all ages. Traditional university characteristics such as residential campuses designed primarily to socialize the young with resources such as residence halls, student unions, recreational facilities, and varsity athletics would have marginal value to adult learners with career and family priorities. Such universal lifelong learning could change dramatically the higher education marketplace, providing for-profit institutions already experienced in adult education with significant advantages. Furthermore it seems likely that the only way that such ubiquitous access can be provided to lifelong learning to adults with career and family responsibilities will be through technology-mediated distance learning.

Globalization

While universities must be responsive to the imperatives of a global economy and attendant to their local responsibilities, they must also become responsible members of the global community, that is, becoming not only universities in the world but also of the world. Yet the challenges facing our world such as poverty, health, conflict, and sustainability not only remain unmitigated but in many respects become even more serious through the impact of the human species–global climate change being foremost among them. The global knowledge economy requires thoughtful, interdependent and globally identified citizens. Institutional and pedagogical innovations are needed to confront these challenges and insure that the canonical activities of universities – research, teaching and engagement – remain rich, relevant and accessible.

There is a strong sense that higher education, long international in participation, may now be in the early stages of globalization, through the efforts of an increasing number of established universities to compete in the global marketplace for students, faculty, and resources; through the rapid growth in international partnerships among universities; and through for-profit organizations (e.g., Apollo, Laureate) that seek to expand through acquisition into global enterprises. New types of universities may appear that increasingly define their purpose beyond regional or national priorities to address global needs such as health, environmental sustainability, and international development.

As a new world culture forms, a number of universities will evolve into learning institutions serving the world, albeit within the context of a particular geographical area (e.g., North America). Many of our leading universities have evolved over time from regional or state universities to, in effect, national universities. Because of their service role in areas such as agriculture and economic development, some universities have gone even beyond this to develop a decidedly international character. Furthermore, the American research university dominates much of the world's scholarship and re-

search, currently enrolling over 450,000 international students and attracting faculty from throughout the world. In view of this global character, some of our institutions may evolve into a new paradigm, the world university

Cyberinfrastructure

The information and communications technologies enabling the global knowledge economy–so-called cyberinfrastructure, the current term used in the United States to describe ICT hardware, software, people, organizations, and policies (Europe calls this e-science)–evolve exponentially, doubling in power every year or so and amounting to a staggering increase in capacity of 100 to 1,000 fold every decade. (Atkins, 2003) It is becoming increasingly clear that we are approaching an inflection point in the potential of these technologies to radically transform knowledge work. To quote Arden Bement, Director of the U.S. National Science Foundation, "We are entering a second revolution in information technology, one that may well usher in a new technological age that will dwarf, in sheer transformational scope and power, anything we have yet experienced in the current information age." (Bement, 2007) Many leaders, both inside and beyond the academy, believe that these forces of change will so transform our educational institutions–schools, colleges, universities, learning networks–over the next generation as to make them unrecognizable within our current understandings and perspectives.

Consider, for example, the changing nature of communication. When we think of digitally mediated human interactions, we generally think of the awkwardness of e-mail or televideo conferences. But as Wm. Wulf suggests, "Don't think about today's teleconference technology, but one whose fidelity is photographic and 3-D. Don't think about the awkward way we access information on the network, but about a system in which the entire world's library is as accessible as a cell-phone." It is only a matter of a decade or so before exponentially evolving information and communications technology will allow human interaction with essentially any degree of fidelity we wish, perhaps even totally immersive in all of our senses as in the "sim-stim" (simulated stimulus) technologies envisioned by science fiction writers (Gibson, 1984).

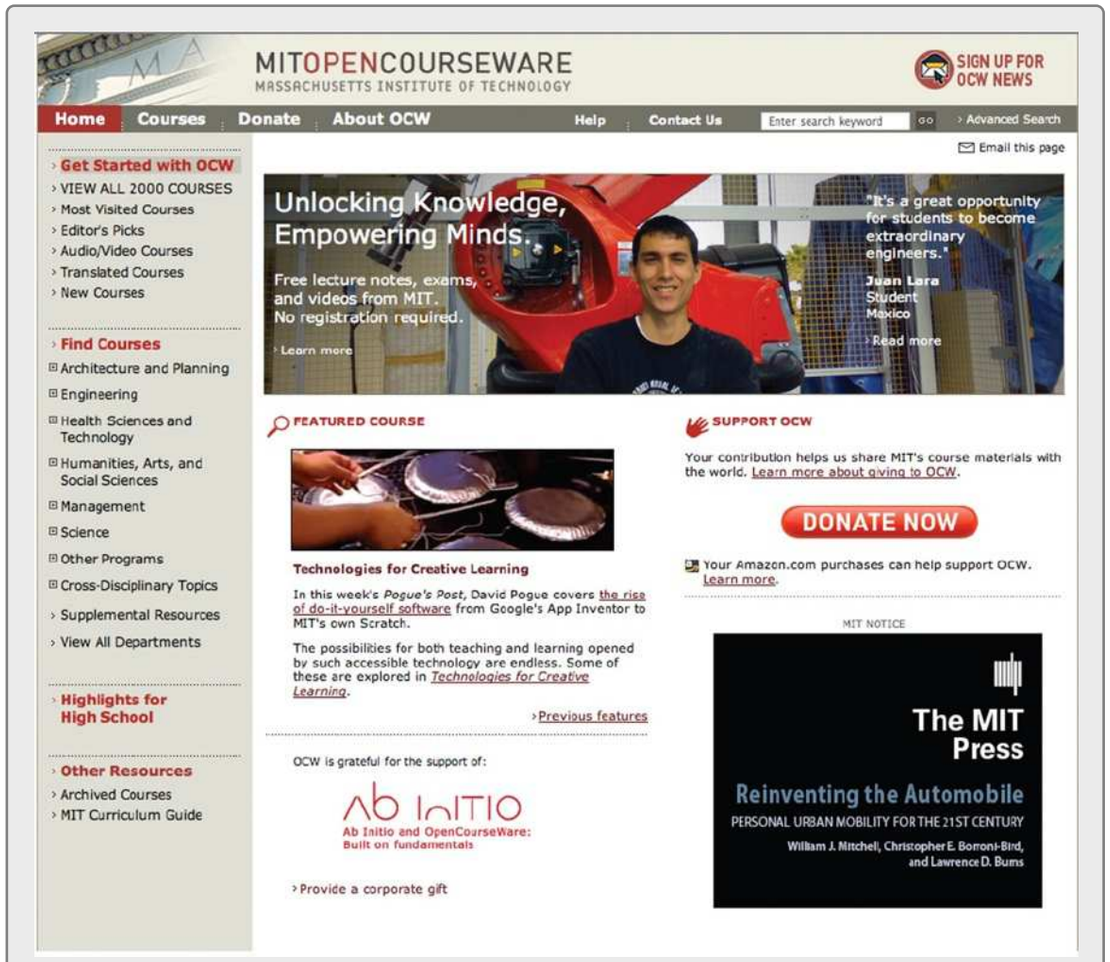
To illustrate with an extreme example, if information technology continues to evolve at its present rate, by the year 2030, the thousand-dollar notebook computer will have a data processing speed and memory capacity roughly comparable to the human brain (Kurzweil, 1999). Furthermore, it will be so tiny as to be almost invisible, and it will communicate with billions of other computers through wireless technology.

For planning purposes, we can assume that by the end of the next decade we will have available infinite bandwidth and infinite processing power (at least compared to current capabilities). We will denominate the number of computer servers in the billions, digital sensors in the tens of billions, and soft-

ware agents in the trillions. The number of people linked together by digital technology will grow from millions to billions. We will evolve from "e-commerce" and "e-government" and "e-learning" to "e-everything," since digital devices will increasingly become predominant interfaces not only with our environment but with other people, groups, and social institutions.

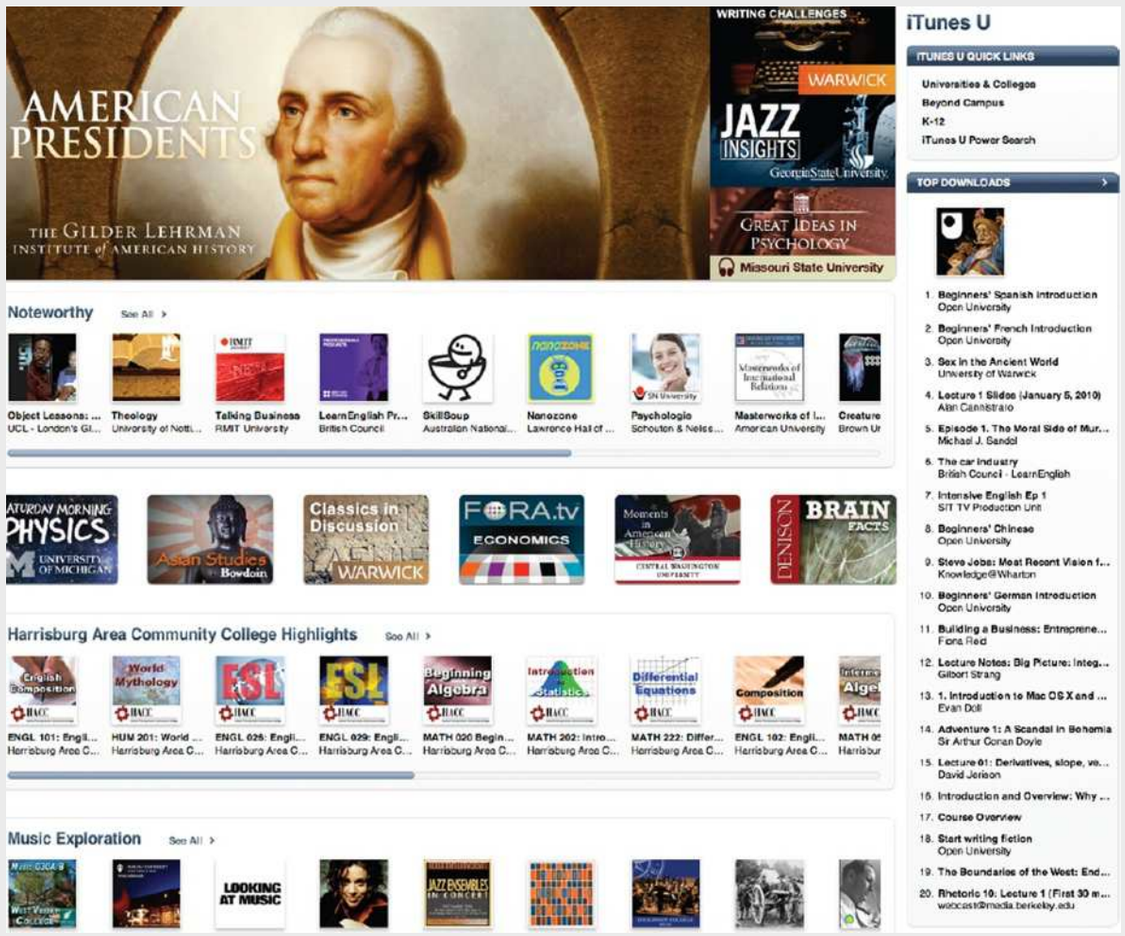
Open Educational Resources

Ironically, while we generally think in terms of this in terms such as Terabit/sec networks and Petaflop supercomputers, the most profound changes in our institutions may be driven not by the technology itself but rather the philosophy of openness and access it enables– indeed, imposes–on its users. Of particular importance are efforts to adopt the philosophy of open source software development to create new opportunities for learning and scholarship for the world by putting previously restricted knowledge into the public domain and inviting others to join in both its use and development. MIT led the way with its OpenCourseWare (OCW) initiative, placing the digital assets supporting almost 2,000 courses into the public domain on the Internet for the world to use (Vest, 2006). Today, over 1,000 universities have adopted the OCW paradigm to distribute their own learning assets to the world, with over 15,000 courses now available online. New resources such as Apple's iTunes U are providing access to such open educational resources, with over 300 million downloads over the past three years.

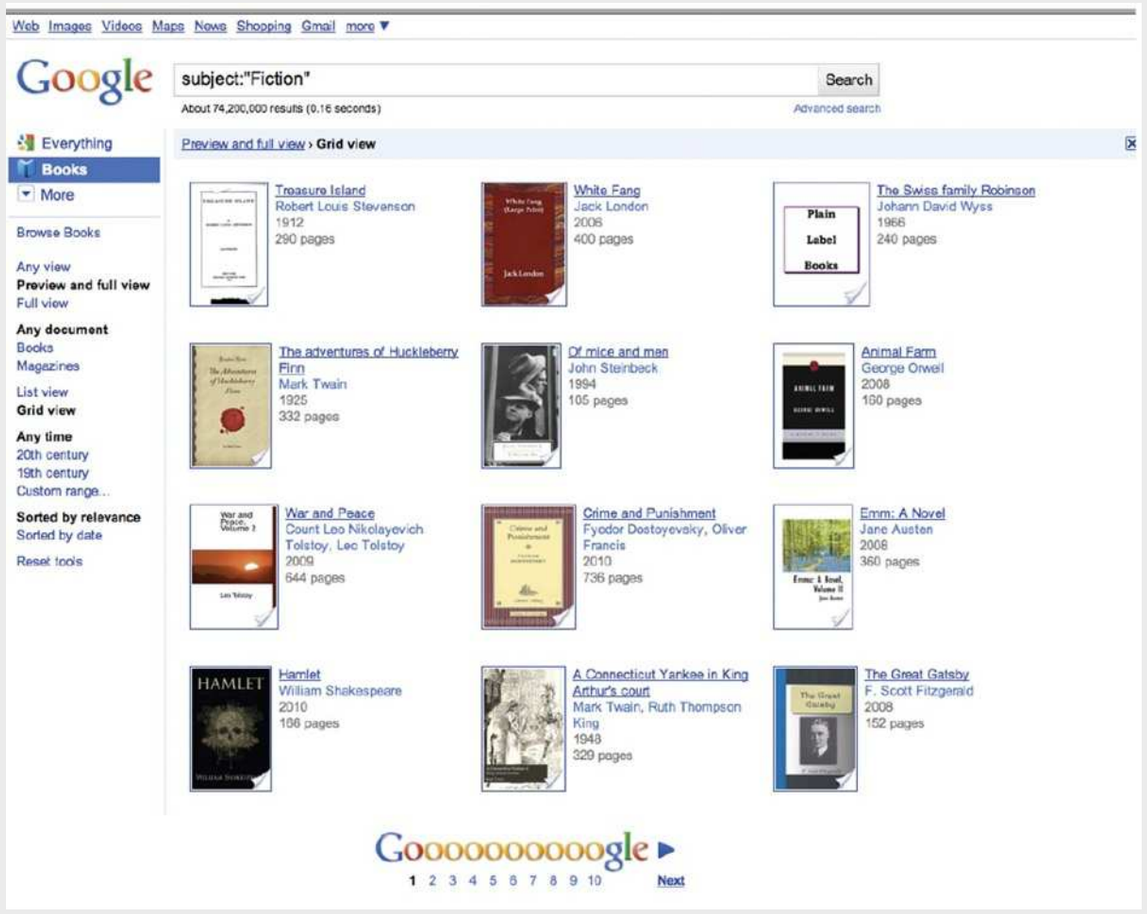


MIT's Open CourseWare

Furthermore, a number of universities and corporations have joined together to develop open-source middleware to support the instructional and scholarly activities of higher education, already used by hundreds of universities around the world (e.g. Moodle, 2007 and Sakai, 2007). Others have explored new paradigms for open learning and engagement, extending the more traditional yet highly successful models pro-



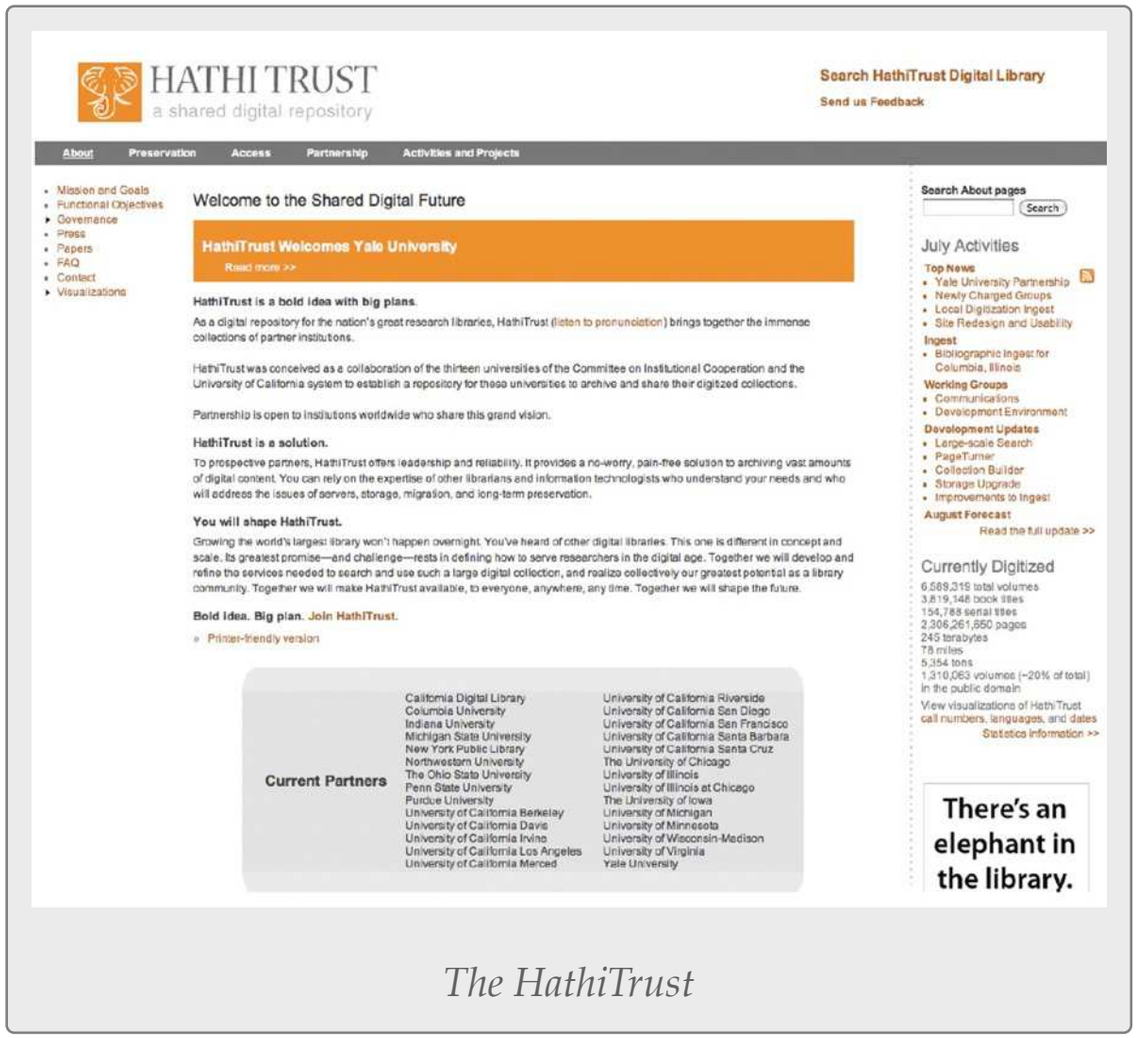
Apple's iTunes U



Google Books

vided by open universities, such as Rice University's Connexion Project. There are increasing efforts to open up both data collection and scholarly publication by both individual institutions and university organizations, including the European University Association and the Association of American Universities. More recently major federal research agencies such as NIH and NSF have implemented new requirements that both the data and publications resulting from their research grants be placed in the public domain on a timely basis.

To this array of open educational resources should be added efforts to digitize massive quantities of printed material. For example, the Google Book project is currently working with a number of leading libraries (26 at last count in 35 languages) around the world to digitize a substantial portion of their holdings (12 million volumes in 2010, with a goal of 30 million by 2020), making these available for full-text searches using Google's powerful internet search engines. It has recently negotiated with publishers to provide full-text access (beyond



The HathiTrust

full-text searches) to the vast volume of "orphan" works no longer in print.

A number of United States universities (26 thus far) have pooled their digital collections to create the Hathi Trust ("Hathi" means "elephant" in Hindi), adding over 400,000 books a month to form the nucleus (already at 6 million books) of what could become a 21st century analog to the ancient Library of Alexandria. While many copyright issues still need to be addressed, it is likely that these massive digitization efforts will be able to provide full text access to a significant fraction of the world's written materials to scholars and students throughout the world within a decade.

We should add into this array of ICT-based activities a few more elements: mobile communication, social computing, and immersive environments. We all know well the rapid propagation of mobile communications technology, with over 4 billion people today having cell-phone connectivity and 1.2 billion with broadband access. It is likely that within a decade the majority of the world's population will have some level of cell-phone connectivity, with many using advanced 3G and 4G technologies.

Preparing for Unknowable Futures

There are other possibilities that might be considered for the longer-term future. Balancing population growth in some parts of the world might be new pandemics, such as AIDS or an avian flu virus, that appear out of nowhere to ravage our species. The growing divide between rich and poor, the developed nations and the third world, the North and South hemispheres, could drive even more serious social unrest and terrorism, perhaps armed with even more terrifying weapons.

Then, too, the unrelenting–indeed, accelerating pace–of technology could benefit humankind, extending our lifespan and quality of life (although perhaps aggravating population growth in the process), meeting the world's needs for food

and shelter and perhaps even energy, and enabling vastly new forms of communication, transportation, and social interaction. Perhaps we will rekindle our species' fundamental quest for exploration and expansion by resuming human spaceflight and eventually colonizing our solar system and beyond.

Sustained progress in the development of new technologies has been the central feature of the past century and is likely to be even more so in the century ahead. But technology will also present new challenges that almost seem taken from the pages of science fiction. Clearly if digital technology continues to evolve at its current pace for the next decade, creating machines a thousand, a million, a billion times more powerful that those which are so dominating our world today, then phenomena such as the emergence of machine consciousness and intelligence become very real possibilities during this century.

In fact some even suggest that we could encounter a "technological singularity," a point at which technology begins to accelerate so rapidly that we lose not only the ability to control but even to predict the future (Kurzweil, 2005). John von Neumann once speculated, "The ever accelerating progress of technology and changes in the mode of human life gives the appearance of approaching some essential singularity in the history of the race beyond which human affairs, as we know them, could not continue." For example, as digital technology continues to increase in power a thousand-fold each decade, at some point computers (or, more likely, large computer networks) might "awaken" with superhuman intelligence. Or biological science may provide the means to improve natural human intellect.

When greater-than-human intelligence drives technological evolution, that progress will accelerate rapidly, including possibly the creation of still more intelligent entities, on a still shorter timescale. To use Von Neumann's terminology, at such a technological "singularity", our old models must be discarded and a new reality appears, perhaps beyond our comprehension.

Clearly phenomena such as machine consciousness, contact by extraterrestrial intelligence, or cosmic extinction from a wandering asteroid are possibilities for our civilization, but just as clearly they should neither dominate our attention nor our near-term actions. We have the freedom to establish initial conditions, make things happen in ways that are less inimical than others. Indeed, the most effective way to prepare for such unanticipated events is to make certain that our descendants are equipped with education and skills of the highest possible quality.

Paradigm Shifts



The Millennials arrive at the Michigan Media Union.

The Common Denominators

Clearly, as knowledge and educated people become key to prosperity, security, and social well-being, the university, in all its myriad and rapidly changing forms, has become one of the most important social institutions of our times. Yet many questions remain unanswered. Who will be the learners served by these institutions? Who will teach them? Who will administer and govern these institutions? Who will pay for them? What will be the character of our universities? How will they function? When will they appear? The list goes on.

It is difficult to suggest a particular form for the university of the 21st Century. The ever-increasing diversity of American higher education makes it clear that many types of institutions will serve our society. Nonetheless, a number of themes will almost certainly characterize at least some part of the higher education enterprise:

- Universities will shift from faculty-centered to learner-centered institutions, joining other social institutions in the public and private sectors in the recognition that we must become more focused on those we serve.

- They will be more affordable, within the resources of all citizens, whether through low cost or societal subsidy.

- They will provide lifelong learning, requiring both a willingness to continue to learn on the part of our citizens and a

commitment to provide opportunities for this lifelong learning by our institutions.

- All levels of education will be a part of a seamless web, as they become both interrelated and blended together.
- Universities will embrace asynchronous learning, breaking the constraints of time and space to make learning opportunities more compatible with lifestyles and needs, anyplace, anytime.
- We will continue to develop and practice interactive and collaborative learning, appropriate for the digital age, the "plug and play" generation.
- Universities will commit to diversity sufficient to serve an increasingly diverse population with diverse needs and goals.
- Universities will need to build learning environments that are both adaptive and intelligent, molding to the learning styles and needs of the students they serve.

There is one further modifier that may characterize the university of the future: ubiquitous. Today, knowledge has become the coin of the realm. It determines the wealth of nations. It has also become the key to one's personal standard of living, the quality of one's life. We might well make the case that today it has become the responsibility of democratic societies to provide their citizens with the education and training they need throughout their lives, whenever, wherever, and however they desire it, at high quality, and at a cost they can afford.

Of course, this has been one of the great themes of higher education in America. Each evolutionary wave of higher education has aimed at educating a broader segment of society—the public universities, the land-grant universities, the normal and technical colleges, and the community colleges. But today we must do even more to serve an even broader segment of our society.

Learn Grants

It is imperative as a matter of both social justice and economic competitiveness that the nation and the states address and remove those factors that have created a strong dependence of access and success in higher education upon socioeconomic status. America should aspire to the ideal where family income is nearly irrelevant to the ability of a student to attend the college or university best matched to his or her talents, objectives, and motivation. As a consequence of both the inadequacy and complexity of existing financial aid programs, many economically disadvantaged students (and parents) no longer see higher education as an option open to them but rather view it as a privilege for the more affluent. As a result, these students do not have the incentive to perform well in K-12 (nor do their parents have the incentive to support them);

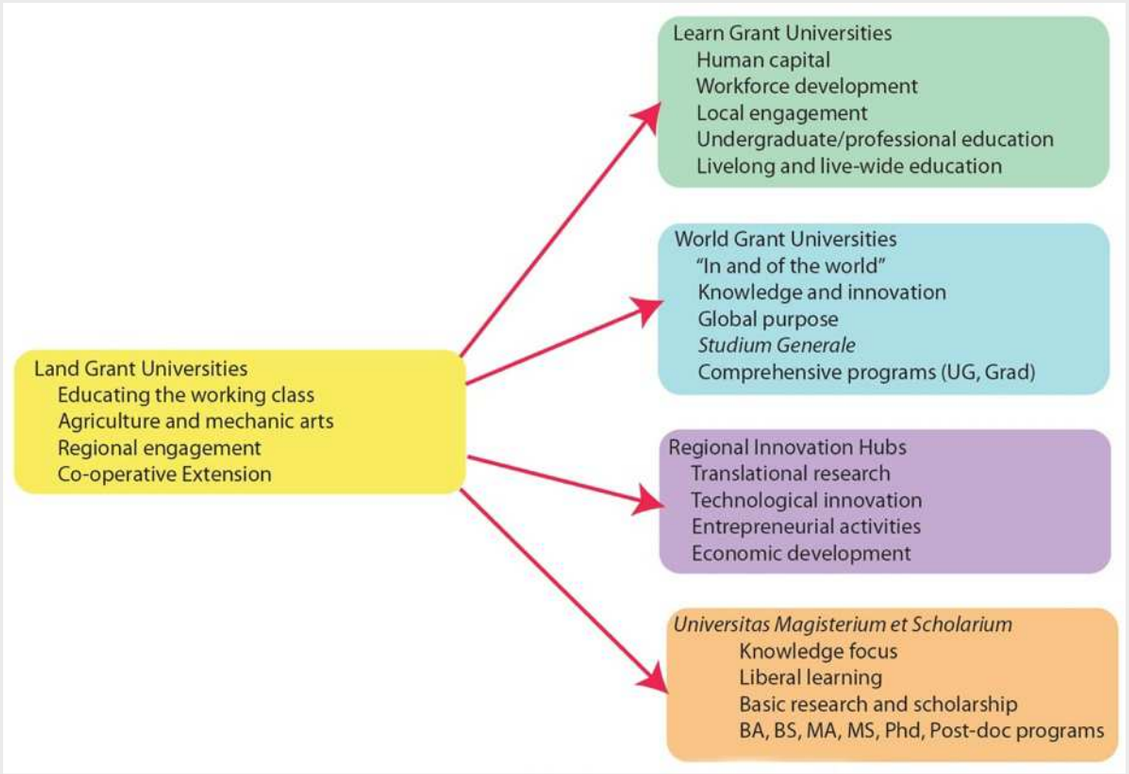
hence they fall behind early or dropping out of the college-bound ranks.

To address this alarming injustice and provide strong incentives for college preparation, we could provide all students with a 529-like college savings account, a "Learn-Grant" when they begin kindergarten. Although this account would be owned by the students (although invested in the equity market by the federal government or its agents), its funds could be used only for post-secondary education upon the successful completion of a high school college-preparatory program. Each year students (and their parents) would receive a statement of the accumulation in their account, with a reminder that this is their money, but it can only be used for their college education (or other post-secondary education). Beyond serving as an important source of financial aid, the Learn Grants would provide a very strong incentive for succeeding in K-12 and preparing for a college education, since the account would be something students own but would lose if they did not continue their education beyond secondary school (after some appropriate grace period).

The program might be funded from any number of sources, e.g., from a federal plus state match, the revenue from the auction of the digital spectrum (most analogous to the Land Grant Act), etc. Although the Learn Grants would be provided to all students when entering K-12 (in order to earn broad political support), they could be augmented with additional contributions from public, private, or parental sources during their pre-college years, based on need and/or performance. An initial contribution of, say, $10,000 (e.g., $5,000 from the federal government with a $5,000 match from the states) would accumulate over their K-12 education to an amount that when coupled with other financial aid would likely be sufficient for a four-year college education at a public college or university. As to cost, if we assume roughly 4.5 million children enter K-12 each year (the estimate for 2010), then at $10,000 per student, this would cost $40 billion ($20 billion each to the states and the feds). While this seems immense, it is about the cost of one year of K-12 education (or college education, on the average). It also should be compared to other public expenditures (Medicaid/Medicare, corrections, defense, and even student financial aid). From this broader perspective, it really doesn't seem excessive when viewed both as an investment in social justice and the future of the nation! The proposed Learn Grant program would provide a powerful stimulus to building the world-class workforce necessary for America's prosperity and security in an ever more competitive global, knowledge-driven economy.

Learn Grant Universities

Today our society is undergoing a similarly profound transition, this time from an industrial to a knowledge-based society. Hence it may be time for a new social contract aimed at providing the knowledge and the educated citizens necessary



Alternative forms of the land-grant philosophy

for prosperity, security, and social well-being in this new age. Perhaps it is time for a new federal act, similar to the land grant acts of the nineteenth century, that will enable the higher education enterprise to address the needs of the 21st Century. The land-grant paradigm of the 19th and 20th centuries was focused on developing the vast natural resources of our nation to build a modern agricultural and industrial economy. Today, however, we have come to realize that our most important national resource for the future will be our people, their knowledge, and their skills and innovation. At the dawn of the age of knowledge, one could well make the argument that learning and innovation will replace natural resources or national defense as the priority for the twenty-first century. We might even conjecture that a social contract based on developing and maintaining the abilities and talents of our people to their fullest extent could well transform our schools, colleges, and universities into new forms that would rival the earlier land-grant university in importance. In a sense, the 21st Century analog to the land-grant university might be termed a learn-grant university.

A learn-grant university for the 21st Century might be designed to develop our most important resource, our human resources, as its top priority, along with the infrastructure necessary to sustain a knowledge-driven society. The field stations and cooperative extension programs–perhaps now as much in cyberspace as in a physical location–could be directed to regional learning and innovation needs. While traditional academic disciplines and professional fields would continue to have major educational and service roles and responsibilities, new interdisciplinary fields such as sustainable technologies and innovation systems might be developed to provide the skills, knowledge, and innovation for a region very much in the land-grant tradition. (A more specific example of such regional innovation hubs is provided in Appendix B.)

Other national priorities such as health care systems, environmental sustainability, globalization, and entrepreneurship might be part of an expanded mission for universities. Institutions and academic researchers would then commit to re-

search and professional service associated with such national priorities. To attract the leadership and the long-term public support needed for a valid national public service mission, faculties would be called upon to set new priorities, collaborate across campus boundaries, and build upon their diverse capabilities. This is just one example of many. But the point seems clear. Such a social contract, linking together federal and state investment and interests with higher education and business to serve national and regional needs, could become the elements of a 21st century analog to the land-grant university.

World Grant Universities

There is a strong sense that higher education, long international in participation, may now be in the early stages of globalization, through the efforts of an increasing number of established universities to compete in the global marketplace for students, faculty, and resources; through the rapid growth in international partnerships among universities; and through for-profit organizations (e.g., Apollo, Laureate) that seek to expand through acquisition into global enterprises. New types of universities may appear that increasingly define their purpose beyond regional or national priorities to address global needs such as health, environmental sustainability, and international development.

While universities must be responsive to the imperatives of a global economy and attendant to their local responsibilities, they must also become responsible members of the global community, that is, becoming not only universities in the world but also of the world. Yet the challenges facing our world such as poverty, health, conflict, and sustainability not only remain unmitigated but in many respects become even more serious through the impact of the human species–global climate change being foremost among them. The global knowledge economy requires thoughtful, interdependent and globally identified citizens. Institutional and pedagogical innovations are needed to confront these challenges and insure that the canonical activities of universities – research, teaching and engagement – remain rich, relevant and accessible.

Lou Anna Simon, president of Michigan State University, one of the nation's earliest land-grant universities, coins the term "world grant university" to describe an extension of the principles inherent in the land-grant tradition adapted to address the global challenges of the twenty-first century and beyond. Such institutions would not be "granted" access to the world in the sense that states were granted tracts of land by the Morrill Act as a resource to support the establishment of land-grant institutions in the United States. Rather, the "world grant" ideal recognizes that fundamental issues unfolding in one's own backyard link directly to challenges occurring throughout the nation and the world. It not only recognizes this seamless connection but also actively grants to the world

a deeply ingrained commitment to access and utilization of the cutting-edge knowledge required to address these challenges.

As The Economist notes, "The most significant development in higher education is the emergence of a super-league of global universities. The great universities of the 20th century were shaped by nationalism; the great universities of today are being shaped by globalization. The emerging global university is set to be one of the transformative institutions of the current era. All it needs is to be allowed to flourish."

Hybrid Public/Private/State/Global Universities

At a time when the strength, prosperity, and welfare of a nation demand a highly educated citizenry and institutions with the ability to discover new knowledge, develop innovative applications of discoveries, and transfer them into the marketplace through entrepreneurial activities, such vital national needs are no longer top state priorities. The model of state-based support of graduate training made sense when university expertise was closely tied to local natural resource bases like agriculture, manufacturing, and mining. But today's university expertise has implications far beyond state boundaries. Highly trained and skilled labor has become more mobile and innovation more globally distributed. Many of the benefits from graduate training—like the benefits of research—are public goods that provide only limited returns to the states in which they are located. The bulk of the benefits are realized beyond state boundaries.

Hence, it should be no surprise that many states have concluded that they cannot, will not, and probably should not invest to sustain world-class quality in graduate and professional education—particularly at the expense of other priorities such as broadening access to baccalaureate education. Today, not only is state support woefully inadequate to achieve state goals, but state goals no longer accumulate to meet national needs. The declining priority that states have given to public higher education makes sense for them but is a disaster for the nation. The growing mismatch between state priorities and national needs suggests that it is time once again to realign responsibilities between the state and the nation for higher education and provide adequate resources to sustain American leadership.

We write "once again" because this is not a brand new issue. The success of university research in winning World War II—with innovations such as radar and electronics—and Vannevar Bush's seminal report, "Science, the Endless Frontier: A Report to the President on a Program for Postwar Scientific Research" (1945), convinced national leaders that university research is too important for national security, public health, and economic prosperity to allow it to be entirely dependent upon the vicissitudes of state appropriations and philan-



Aligning support and governance with specific patrons for each mission of the university

thropy. Hence, the federal government assumed the primary responsibility for the support of research, now at a level of $30 billion each year—an effort that has been estimated to have stimulated roughly half of the nation's economic growth during the latter half of the 20th century, while sustaining the nation's security and public health.

Once more, it is time for the federal government to step in and provide the support necessary to keep our crucial graduate programs among the best in the world. Educating scientists and engineers, physicians and teachers, business leaders and entrepreneurs is vital to developing the human capital that is now key to national prosperity and security in the global, knowledge-driven economy. It cannot be left dependent on shifting state priorities and declining state support.

So how might this work? A new structure would distribute the primary responsibilities for the support of the nation's flagship public research universities among the states, the federal government, and private donors. The states, consistent with their current priorities for enhancing workforce quality, would focus their limited resources on providing access to quality education at the associate and baccalaureate levels, augmented by student tuition and private philanthropy. The federal government would become, in addition to a leader in supporting university research, the primary patron of advanced education at the graduate and professional level. Private patrons, including foundations and individual donors, would continue to play a major role in support of the humanities, the arts, the preservation of knowledge and culture, and the university's role in serving as an informed critic of society—all roles of great importance to the nation. Those functions would also continue to receive state support, because they are essential to high-quality baccalaureate education.

How much additional federal investment will this new approach require? We suggest a magnitude roughly comparable to those of other major federal programs for the support of higher education such as university research ($30 billion per year), the Pell Grant program ($26 billion per year), or the foregone federal tax revenues associated with the beneficial tax treatment of charitable giving and endowment earnings ($22 billion per year).

Those additional resources would best be allocated to universities based on a combination of merit and impact. For example, competitive traineeship programs might be used in some disciplines, while grants for other fields might be based on graduation rates or the size of graduate faculties or student enrollments. Other grants could be designed to stimulate and support newly emerging disciplines in areas of national priority, like nanotechnology or global sustainability. In all cases, the key objective would be the direct support of graduate programs through sustained block grants to universities—rather than grants to individual faculty members or students.

What matters now is that, more than ever before, America needs to develop a strategy for building and sustaining a system of research universities that is the best in the world. As the states inevitably play a declining role in the support of advanced education and research, it is time for the federal government to move beyond its policy of giving money only to individuals—students through financial aid and scholars through research grants. It must provide direct support to select institutions with the intent of sustaining those missions of advanced graduate-level training that are of particular importance to the nation. Most developed nations in Europe and Asia have developed this strategic approach to creating and sustaining selected research universities at world-class levels. In fact, today the United States essentially stands alone in its failure to develop a national strategy for sustaining the quality of its research-intensive universities.

The nation's earlier vision and commitment to create public universities competitive in quality to the best universities in the world were a reflection of the democratic spirit of a young America. Flagship public research universities have been vital not only to regional prosperity but also to national security and well being. Today, we face the challenges of a hypercompetitive global, knowledge-driven society in which other nations recognize the positive impact that building world-class universities can have. America already has them. They are one of our nation's greatest assets. Preserving their quality and capacity requires bold national investment.

The "No-Frills" University

In recent years there has been growing discussion about the possibility of accelerated three-year baccalaureate programs in U.S. higher education. In part this has been stimulated by the broad adoption by European universities of the three-year degree programs associated with the Bologna Process. But it

has also been proposed as a way to reduce the cost of a college education, or as Senator Lamar Alexander puts it, viewed as "the higher education equivalent of a fuel-efficient car".

In fact, one might go even further and imagine introducing into American higher education streamlined universities more similar those in Europe. Most European universities enroll adult students directly in three-year disciplinary majors after longer and more intense secondary educations. In contrast, American colleges and universities have inherited from their British antecedents the mission of the socialization of young students. Not only does this require a very substantial investment in supporting infrastructure such as residence halls, community facilities, and entertainment and athletic venues, but it can also distract the university from its more fundamental knowledge-based mission. Nevertheless it has become the expectation of American parents that "college is the place where we send our children to grow up". Furthermore, U.S. colleges and universities are expected to compensate for the significant weaknesses currently characterizing primary and secondary education in the United States, even if that requires providing remedial programs for many underprepared students.

In sharp contrast European universities focus their activities on teaching and scholarship for adult students. Entering students enroll in focused three-year discipline-based baccalaureate programs without the preliminary general education experience and socialization programs characterizing American universities. Students are expected to arrange for their own living and social activities, while the university focuses on its "knowledge and learning" mission, thereby avoiding many of the costs associated with socializing young students.



Most European universities are designed for upper division (adult) students (here at the Sorbonne, U. Paris).

There have been numerous suggestions that the United States explore the "no-frills" approach of European universities by focusing the activities of some of their universities entirely upon teaching and scholarship for adult students, thereby greatly reducing costs and tuition. This would allow the uni-

versities to focus their extensive—and expensive—resources where they are most effective: on intellectually mature students who are ready to seek advanced education and training in a specific discipline or profession. It would relieve them of the responsibility of general education and parenting, roles for which many large universities are not very well suited in any event. It might also allow them to shed their activities in remedial education, a rather inappropriate use of the costly resources of the research university. Focusing universities only on advanced education and training for academically mature students could actually enhance the intellectual atmosphere of the campus, thereby improving the quality of both teaching and scholarship considerably. Adult learners would be far more mature and able to benefit from the resources of these institutions.

Ironically, such a focusing of efforts might even reduce public criticism of higher education. Most students—and parents—appear quite happy with the quality of both upper-class academic majors and of professional education. Furthermore, they seem quite willing to pay the necessary tuition levels, both because they accept the higher costs of advanced education and training, and because they see more clearly the benefits of the degree to their careers, "the light at the end at the tunnel." In contrast, most of the concern and frustration expressed by students and parents with respect to quality and cost are focused on the early years of a college education, on the general education phase, since they perceive this style of pedagogy very similar to that of secondary education.

Yet the current quality and character of secondary education in the United States probably will not allow this for most students. Secondary education in Europe and much of the rest of the world is characterized by a more extended and intensive pre-college education, e.g., gymnasia, lyceums, and colleges, which provide much of the general education preparation that currently comprises the first two-years of American college education. Hence a major shift to three-year baccalaureate programs or no-frills adult universities would likely require a major restructuring of secondary education in the United States more along the lines of Europe and Canada.

Open Universities

For many years, the educational needs of many nations have been addressed by open universities, institutions relying on both televised or Internet-based courses and local facilitators to enable students to study and earn degrees at home. Perhaps most notable has been the British Open University, but this is only one of many such institutions that now enroll over three million students worldwide.

These institutions are based upon the principle of open learning, in which technology and distance education models are used to break down barriers and provide opportunities for learning to a very broad segment of society. In these models,

students become more active participants in learning activities, taking charge of their own academic program as much as possible. Many of these open universities are now embracing information technology, particularly the Internet, to provide educational opportunities to millions of students unable to attend or afford traditional residential campuses (e.g., the University of the People, which aims to provide tuition-free education to developing economies).

The motivation behind open universities involves cost, access, and flexibility. The open university paradigm is based not on the extension of the classroom but rather the one-to-one learning relationship between the tutor and the student. It relies on very high-quality learning materials, such as learning software and digital materials distributed over the Internet, augmented by facilitators at regional learning centers and by independent examiners. Using this paradigm, for example, the British Open University has been able to provide high-quality learning opportunities (currently ranked among the upper 15 percent of British universities) at only a fraction of a cost of residential education ($7,000 compared to $20,000 per student year in North America).

To date most open universities rely heavily on self-learning in the home environment, although they do make use of interactive study materials and decentralized learning facilities where students can seek academic assistance when they need it. However, with the rapid evolution of virtual distributed environments and learning communities, these institutions will soon be able to offer a mix of educational experiences.

Clearly, the open university will become an increasingly important player in higher education at the global level. The interesting question is whether these institutions might also gain a foothold in the United States. Newly emerging institutions such as the Western Governors' University and the University of Phoenix are exploiting many of the concepts pioneered by the open university movement around the world

Already some open universities are moving rapidly to embrace the open educational resources movement, providing instruction through the OpenCourseWare paradigm and access to the massive digital libraries now becoming available. One might even imagine the emergence of "open source" universities, committed to providing extraordinary access to knowledge and learning tools through open learning resources. In fact, some institutions might decide to remove entirely the restrictions imposed by intellectual property ownership by asking all of their students and faculty members to sign a Creative Commons license for any intellectual property they develop at the University (at first copyright but eventually possibly even exploring other intellectual properties such as patents). Perhaps this would even redefine the nature of a "public" university, much in the spirit of the "public" library!

Learning Networks

Driven by information technology, the network has become more than a web that links together learning resources. It has become the architecture of advanced learning organizations. Information, knowledge, and learning opportunities are now distributed across robust computer networks, with over 4 billion people today estimated to have cell-phone connectivity and 1.2 billion with broadband access. Such widespread access, combined with the explosion in the availability of digital information and open learning paradigms such as the OpenCourseware initiative, makes it clear that the knowledge, the learning, the cultural resources that used to be the prerogative of a privileged few are rapidly becoming available anyplace, anytime, to anyone.

To this one should add the changing way that the "net generation" is using these new technologies to build social communities–instant messaging, blogs, wiki's, virtual worlds, Facebook, Twitter, Wikipedia. They have embraced and reshaped their lives with such highly interactive, social networking. Rather than access the vast knowledge resources provided through the open education resources movement through passive media such as books, this generation accesses knowledge and builds social communities through 3-D virtual reality environments such as Second Life, the World of Warcraft, and Croquet in which all of the senses are faithfully replicated to enable human interaction at a distance.

The impact on all social organizations has been profound. Business and industry are moving rapidly away from the hierarchy of the organizational pyramid to networked organizations of relatively autonomous components. The transactional culture of the now bankrupt General Motors should be contrasted with the relational approach of IBM to building global enterprises.

It is important to appreciate how profound this new network architecture is for learning organizations. Today's learners can learn anywhere, anytime, learning and acquiring knowledge from sources in any location. Today, learners are in command of what, how, where, and when they learn, and they will be increasingly in control of what they pay for the learning opportunity as well.

The implications of a networked learning architecture are manifold. First, it makes less and less sense for institutions to attempt to be comprehensive, to go it alone. Rather, the key will be forming alliances, sharing resources, specializing in what they can be really good at, and relying on other focused institutions to provide the rest. The fact learned through painful experience in business and industry is that only world-class, competitively priced products will succeed in a global marketplace. This does not mean that the largest, most prestigious institutions will necessarily be the most successful. Indeed, smaller, more focused, and more nimble institutions



Will the university continue to exist as a place?

may be able to develop world-class learning services that could compete very effectively with traditional offerings.

Learning networks may also work to couple different levels of education. For example, we are already seeing evidence that many high school students are entering college with degree credit in college-level courses taken over the Internet. By the same token, many colleges must provide remedial education at the secondary school level. At the other end, adults are seeking further educational services from higher education to respond to changing career requirements. A network architecture works best for the delivery of educational services when and where they are needed—that is, for "just in time" rather than "just in case" education. Granted this may not be the appropriate architecture for the general subjects associated with a liberal education. But it will in all likelihood increasingly dominate professional education and work-related learning.

One can imagine the learning networks evolving into a seamless continuum of educational opportunities and services, in which the degree becomes less and less relevant, and what a person has learned becomes far more significant. Learning communities will be more extended and diverse with a network architecture. Since they will evolve unconstrained by space and time, off-campus learners will vastly outnumber on-campus students. Beyond that, the distinction between learner, teacher, and researcher may become blurred. All will be able to make contributions to learning, teaching, and scholarship.

Today, as knowledge becomes an ever more significant factor in determining both personal and societal well being, and as rapidly emerging information technology provides the capacity to build new types of communities, we might well see the appearance of new social structures. A century ago, stimulated by the philanthropy of Andrew Carnegie, the public library became the focal point for community learning. Today, however, technology allows us to link together public and private resources such as schools, libraries, museums, hospitals, parks, media, and cultural resources. Further, communities

can easily be linked with the knowledge resources of the world through the Internet.

There are some interesting trends in technology that suggest that new types of "community knowledge structures" may, in fact, appear, ones that will not be derivative of traditional institutions such as schools or libraries. The first trend involves the evolution of global computer networks such as the Internet. In addition to their ability to link people together into electronic communities, they link us as well to increasingly diverse and rich sources of knowledge. In a sense, they have become "knowledge networks," giving us the capacity to build communities with access to vast intellectual resources.

The second trend is our growing understanding of how learning and intelligent systems function. Modern computers are increasingly simulating natural cognitive processes, utilizing structures such as massively parallel computers, neural networks, and genetic algorithms. This convergence not only enables us to simulate and understand natural intelligence better, but it may also be the key to building artificial systems capable of learning and intelligent behavior.

The third trend is related to our developing understanding of the behavior of complex adaptive systems. We are learning that even the most primitive systems can frequently exhibit quite complex behavior. And many complex systems can exhibit self-organizing behavior, in which quite sophisticated and complex behavior evolves out of what appears first as chaotic, random processes.

These three themes—knowledge networks, learning and intelligent systems, and complex adaptive systems—may provide the key to understanding the evolution of a global structure, linking together billions of people, their knowledge resources, and their communities through robust communications technology.

A Return to *Universitas Magistrorum et Scholarium* –in Cyberspace?

It is ironic that the cyberspace paradigm of learning communities may actually return higher learning to the older tradition of the scholar surrounded by disciples in an intense learning relationship. The term "university" actually originated during the Middle Ages with the appearance of "unions" of students or faculty members who joined together to form communities of teachers or students. The Latin origin, universitas, meant "the totality" or "the whole" and was used by medieval jurists as a general term to designate communities or corporations such as guilds, trades, and brotherhoods. Eventually the term university was restricted to these unions of masters and scholars and given the more formal Latin title: universitas magistrorum et scholarium.

From time to time, educators have attempted to define university in more intellectual terms. Although historically "univer-

sity" referred to a union or corporate body of students or faculty, John Henry Newman stressed instead an alternative interpretation of the word: "The university is a place of teaching universal knowledge. This implies that its object is, on the one hand, intellectual, not moral; and on the other, that it is the diffusion and extension of knowledge rather than its advancement. If its object were scientific and philosophical discovery, I do not see why a university would have students; if religious training, I do not see how it can be the seat of literature and science." In fact, the earliest European universities were designated as studium generale by church or state to indicate their role to provide learning of a broad, universal nature to all of the known world (enabled, of course, by the use of Latin as the universal language of the academy).

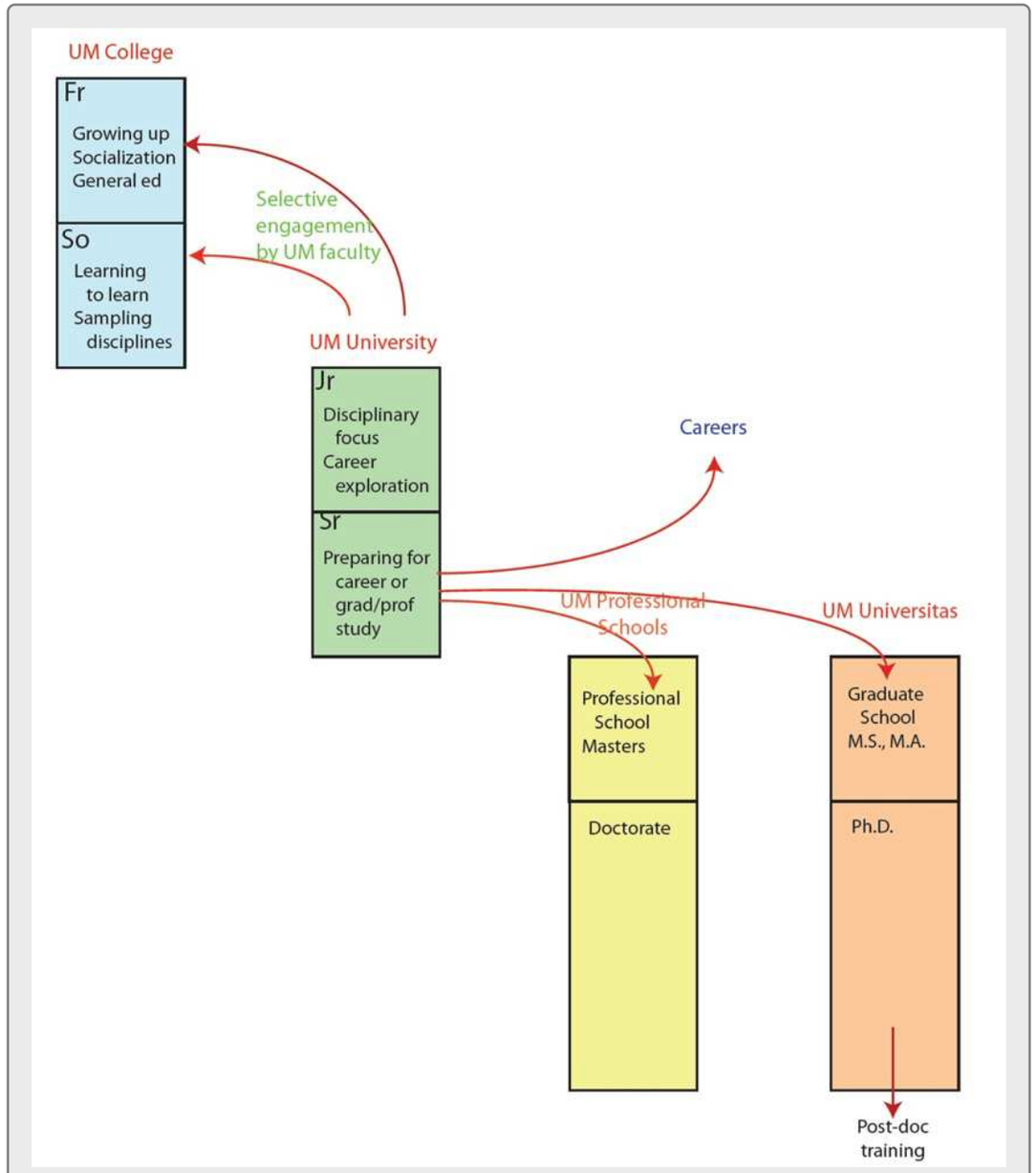
We tend to prefer a simpler synthesis of these definitions of the university:

A university is a community of masters and scholars (or in medieval terms, universitas magisterium et scholarium), a school of universal learning (Newman) embracing every branch of knowledge and all possible means for making new investigations and thus advancing knowledge (Tappan).

In a sense, this recognizes that the true advantages of universities are in the educational process, in the array of social interactions, counseling, tutorial, and hands-on mentoring activities that require human interaction. In this sense, information technology will not so much transform higher education—at least in the early phases—as enrich the educational opportunities available to learners. In a sense, technology is enabling the most fundamental character of the medieval university to emerge once again, but this time in cyberspace!

There is an important implication here. Information technology may allow—perhaps even require—new paradigms for learning organizations that go beyond traditional structures such as research universities, federal research laboratories, research projects, centers, and institutes. If this is the case, we should place a far higher priority on moving to link together our students and educators among themselves and with the rest of the world. This would be a modest investment compared with the massive investments we have made in the institutions of the past—university campuses, transportation, and urban infrastructure. It is none too early to consider an overarching agenda to develop deeper understanding of the interplay between advanced information technology and social systems. In some future time we may have the knowledge to synthesize both in an integrated way as a total system.

Yet, even as the university continues to grow and diversify as it evolves, one must always remember that at its core are its academic programs. One might describe the academic programs of the university in terms of the flow of students, first entering the university as undergraduates at the lower division (freshman, sophomore) level with the primary early objectives of socializing young adults, providing foundational



The flow of students through university programs

learning, and enabling students to sample an array of disciplines for possible majors. Although lower division programs comprises a primary mission of community colleges and four-year liberal arts colleges, most public research universities today assign both instruction and student counseling to non-tenure track faculty (lecturers and instructors) and professional staff, with only occasional student interaction with senior faculty in survey courses. There is a much greater involvement of senior faculty with undergraduate education at the upper division level, where students select to concentrate in an academic discipline and begin to prepare either for careers or further study at the graduate or professional level.

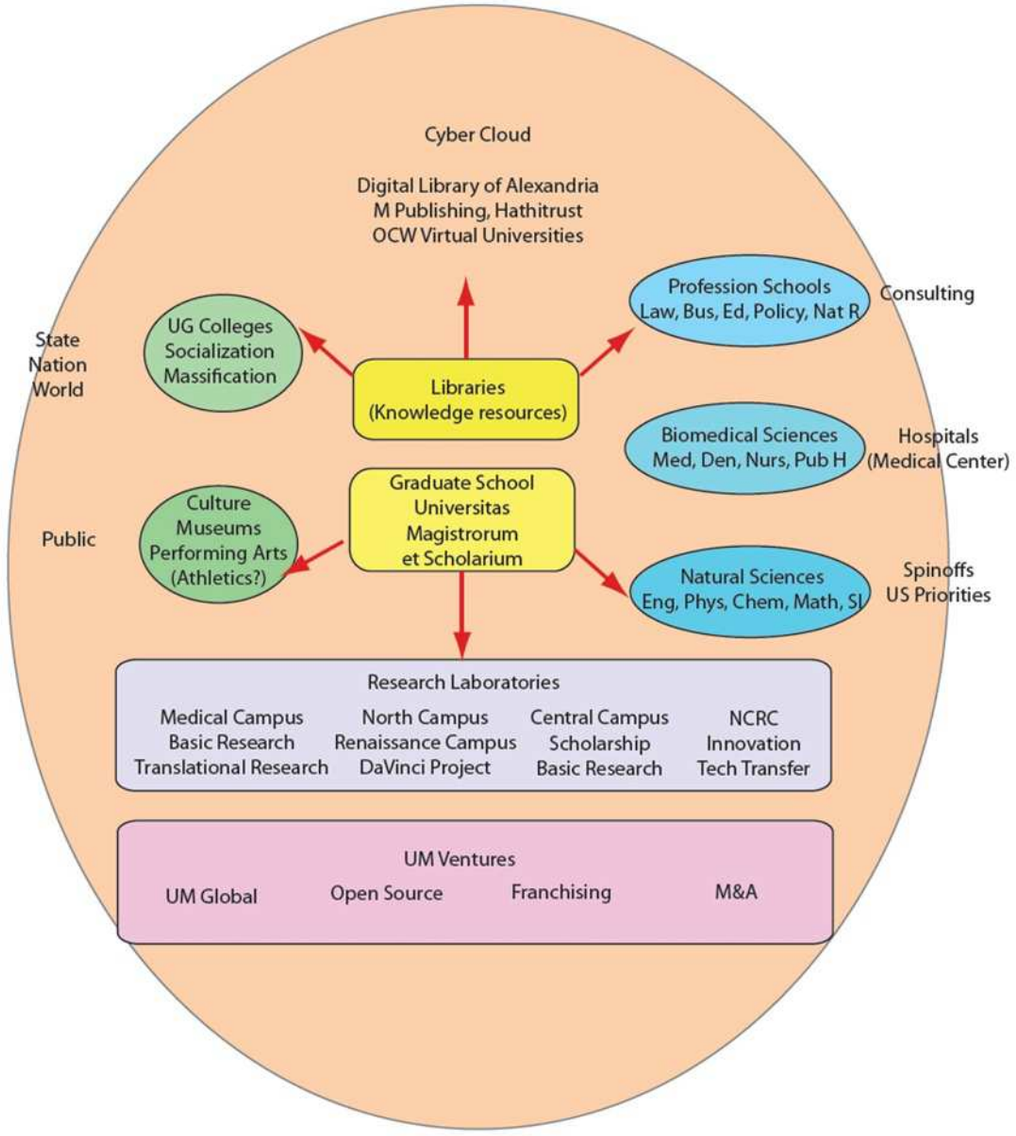
In fact, most students at leading research universities will continue their studies in professional schools at the graduate level in fields such as law, medicine, business administration, or education. These studies general lead to graduate professional degrees at the masters level (MBA, M.Arch, MAT) or doctorate level (M.D., LL.D.).

A select few undergraduates will choose instead to enter the graduate programs of the university to prepare for careers in research or as college faculty. These graduate programs of the university are the closest analog to the universitas magisterium et scholarium of ancient universities since learning and scholarship occurs through unions or communities of masters (the faculty) and scholars (the students) leading to graduate degrees such as the M.S. or M.A. and the Ph.D. In fact, in many fields such as the physical and biomedical sciences, even further education at the postdoctoral level has become the norm for students wishing to enter the academy.

From a more fundamental perspective, these graduate programs (and their associated graduate schools in many univer-

sities), along with knowledge resources such as the university libraries, comprise the true academic core of the research university. They determine the intellectual vitality and reputation of the university and its various undergraduate and graduate programs. Usually this academic core also has an important physical presence on the university campus, with the graduate school and university library located in the center of the campus, about which are distributed not only the various schools and colleges but as well key cultural resources as the performing arts. Many American research universities have a similar structure, with a clearly identifiable academic core surrounded by an array of schools, colleges, cultural institutions, and research activities.

Yet, as the influence of powerful forces such as the changing needs of society, globalization, and information technology reshape the activities of the university, one can expect its organization and structure to continue to evolve. Many research universities are already evolving into so-called "core in cloud" organizations, in which academic departments or schools conducting elite education and basic research, are surrounded by a constellation of peri-university organizations—research institutes, think tanks, corporate R&D centers—that draw intellectual strength from the core university and provide important financial, human, and physical resources in return. Such a structure reflects the blurring of basic and applied research, education and training, the university and broader society.



The cyberspace version of the "core-in-cloud" university

More specifically, while the academic units at the core retain the traditional university culture of faculty appointments, tenure, and intellectual traditions, for example, disciplinary focus, those peri-academic organizations evolving in the cloud can be far more flexible and adaptive. They can be multidisciplinary and project focused. They can be driven by entrepre-

neurial cultures and values. Unlike academic programs, they can come and go as the need and opportunity arise. And, although it is common to think of the cloud being situated quite close to the university core, in today's world of emerging electronic and virtual communities, there is no reason why the cloud might not be widely distributed, involving organizations located far from the campus. In fact, as virtual universities become more common, there is no reason that the core itself has to have a geographical focus.

To some degree, the core-in-cloud model could revitalize core academic programs by stimulating new ideas and interactions. It can provide a bridge that allows the university to better serve society without compromising its core academic values. But, like the entrepreneurial university, it could also scatter and diffuse the activities of the university, creating a shopping mall character with little coherence.

Learning Ecologies

John Seely Brown suggests that we might think of the contemporary university as an interconnected set of three core competencies: learning communities, knowledge resources, and the certification of knowledge skills. Social computing will empower and extend learning communities beyond the constraints of space and time. Open knowledge and education resources will clearly expand enormously the knowledge resources available to our institutions. And immersive environments will enable the mastery of not simply conventional academic knowledge but tacit knowledge. A fundamental epistemological shift in learning is occurring from individual to collective learning; from a focus on development of skills to instead dispositions, imagination, and creativity; and enabling the acquisition of both explicit and tacit knowledge.

In a rapidly changing world, innovation no longer depends only upon the explicit dimension characterizing conventional content-focused pedagogy focused on "learning to do". Rather, one needs to enable an integration of tacit knowledge with explicit knowledge. Emerging ICT technologies that enable social networking to form learning communities and immersive virtual environments for simulation and play facilitate the "deep tinkering" that provides the tacit knowledge necessary to "learn to be", tools already embraced by the young if not yet the academy. In a sense, learning has become a "culture", in the sense of the Petri dish that is in a state of constant evolution.

Once we have realized that the core competency of the university is not simply transferring knowledge, but developing it within intricate and robust networks and communities, we realize that the simple distance-learning paradigm of the virtual university is inadequate. The key is to develop computer-mediated communications and communities that are released from the constraints of space and time.

Distance learning based on computer-network-mediated paradigms allows universities to push their campus boundaries

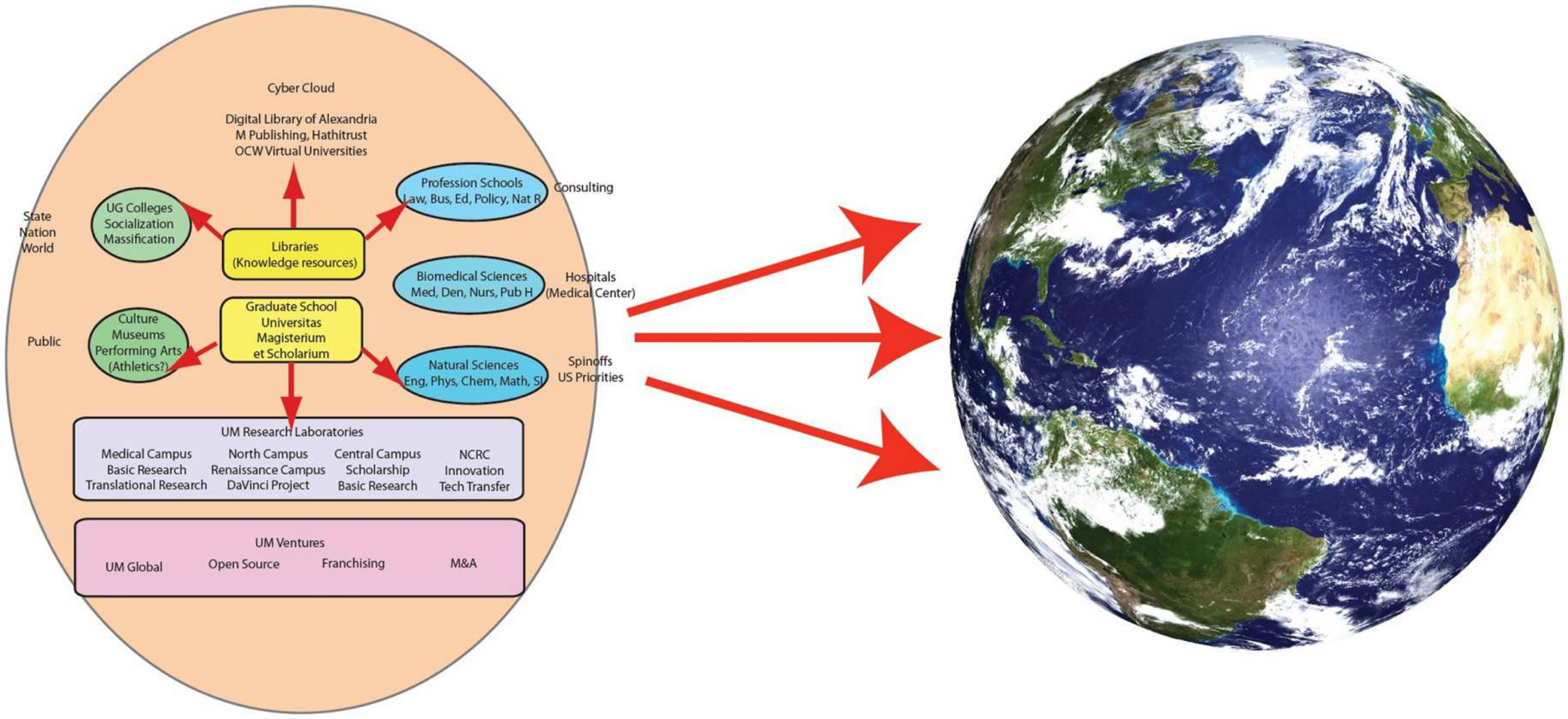
outward to serve learners anywhere, anytime. Those institutions willing and capable of building such learning networks will see their learning communities expand by an order of magnitude. In this sense, the traditional paradigm of "time-out-for-education" can be more easily replaced by the "just in time" learning paradigms, more appropriate for a knowledge-driven society in which work and learning fuse together.

The University as an Emergent Civilization

So what might we anticipate over the longer term as possible future forms of the university? The monastic character of the ivory tower is certainly lost forever. Although there are many important features of the campus environment that suggest that most universities will continue to exist as a place, at least for the near term, as digital technology makes it increasingly possible to emulate human interaction in all the sense with arbitrarily high fidelity, perhaps we should not bind teaching and scholarship too tightly to buildings and grounds. Certainly, both learning and scholarship will continue to depend heavily upon the existence of communities, since they are, after all, high social enterprises. Yet as these communities are increasingly global in extent, detached from the constraints of space and time, we should not assume that the scholarly communities of our times would necessarily dictate the future of our universities. For the longer term, who can predict the impact of exponentiating technologies on social institutions such as universities, corporations, or governments, as they continue to multiply in power a thousand-, a million-, and a billion-fold?

But there is a possibility even beyond these. Imagine what might be possible if all of these elements are merged, i.e., Internet-based access to all recorded (and then digitized) human knowledge augmented by powerful search engines and AI-based software agents; open source software, open learning resources, and open learning institutions (open universities); new collaboratively developed tools (Wikipedia II, Web 2.0); and ubiquitous information and communications technology (e.g., inexpensive network applies such as iPhones or iPad). In the near future it could be possible that anyone with even a modest Internet or cellular phone connection will have access to the recorded knowledge of our civilization along with ubiquitous learning opportunities and access to network-based communities throughout the world (perhaps even through immersive environments such as Second Life).

Imagine still further the linking together of billions of people with limitless access to knowledge and learning tools enabled by a rapidly evolving scaffolding of cyberinfrastructure, which increases in power one-hundred to one thousand-fold every decade. This hive-like culture will not only challenge existing social institutions–corporations, universities, nation states, that have depended upon the constraints of space, time, laws, and monopoly. But it will enable the spontaneous emergence of new social structures as yet unimagined–just



The university as an emergent global civilization based on knowledge, learning, and innovation

think of the early denizens of the Internet such as Google, Facebook, Wikipedia, …and, unfortunately, Al Qaeda. In fact, we may be on the threshold of the emergence of a new form of civilization, as billions of world citizens interact together, unconstrained by today's monopolies on knowledge or learning opportunities.

Perhaps this, then, is the most exciting vision for the future of knowledge and learning organizations such as the university, no longer constrained by space, time, monopoly, or archaic laws, but rather responsive to the needs of a global, knowledge society and unleashed by technology to empower and serve all of humankind. And all of this is likely to happen during the lives of today's students. These possibilities must inform and shape the manner in which we view, support, and lead higher education. Now is not the time to back into the future.

SECTION 3

Whence and Whither the Revolution



The Stata Center at MIT (designed by Frank Gehry)

Yet today university today looks very much like it has for decades–indeed, centuries in the case of distinguished European universities. They are still organized into academic and professional disciplines; they still base their educational programs on the traditional undergraduate, graduate, and professional discipline curricula; our universities are still governed, managed, and led as they have been for ages.

But if one looks more closely at the core activities of students and faculty, the changes over the past decade have been profound indeed. The scholarly activities of the faculty have become heavily dependent upon digital technology–rather cyberinfrastructure–whether in the sciences, humanities, arts, or professions. Although faculties still seek face-to-face discussions with colleagues, these have become the booster shot for far more frequent interactions over Internet. Most faculty members rarely visit the library anymore, preferring to access far more powerful, accessible, and efficient digital resources. Many have ceased publishing in favor of the increasingly ubiquitous preprint route. And, as we have suggested earlier, student life and learning are also changing rapidly, as students bring onto campus with them the skills of the net generation for applying this rapidly evolving technology to their own interests, forming social groups, role playing (gaming), accessing services, and learning, despite the insistence of their professors that they jump through the hoops of the traditional classroom paradigm.

In one sense it is amazing that the university has been able to adapt to these extraordinary transformations of its most fundamental activities, learning and scholarship, with its organization and structure largely intact. Here one might be inclined to observe that technological change tends to evolve much more rapidly than social change, suggesting that a social institution such as the university that has lasted a millennium is unlikely to change on the timescales of tech turns, although social institutions such as corporations have learned the hard way that failure to keep pace can lead to extinction. Yet, while social institutions may respond more slowly to technological change, when they do so, it is frequently with quite abrupt and unpredictable consequences, e.g., "punctuated evolution".

It could also be that the revolution in higher education is well underway, at least with the early adopters, and simply not sensed or recognized yet by the body of the institutions within which the changes are occurring. Universities are extraordinarily adaptable organizations, tolerating enormous redundancy and diversity. It could be that information technology revolution is more a tsunami that universities can float through rather a rogue wave that will swamp them.

An alternative viewpoint of the transformation of the university might be as an evolutionary rather than a revolutionary process. Evolutionary change usually occurs first at the edge of an organization (an ecology) rather than in the center where it is likely to be extinguished. In this sense the cyberinfrastructure that is now transforming scholarship and the communications technology enabling new forms of learning communities have not yet propagated into the core of the university. Of course, from this perspective, recent efforts such as the Google Book project take on far more significance, since the morphing of the university library from stacks to Starbucks strikes at the intellectual soul of the university.

Admittedly it is frequently the case that futurists have a habit of overestimating the impact of new technologies in the near term and underestimating them over the longer term. There is a natural tendency to implicitly assume that the present will continue, just at an accelerated pace, and fail to anticipate the disruptive technologies and killer apps that turn predictions topsy-turvy. Yet we also know that far enough into the future, the exponential character of the evolution of Moore's Law technologies such as info-, bio-, and nano- technology makes almost any scenario possible.

Certainly the monastic character of the ivory tower is lost forever. Although there are many important features of the campus environment that suggest that most universities will continue to exist as a place, at least for the near term, as digital technology makes it increasingly possible to emulate human interaction in all the senses with arbitrarily high fidelity, perhaps we should not bind teaching and scholarship too tightly to buildings and grounds. So too, both learning and scholar-

ship will continue to depend heavily upon the existence of communities, since they are, after all, highly social enterprises. Yet as these communities are increasingly global in extent, detached from the constraints of space and time, we should not assume that the scholarly communities of our times will necessarily dictate the future of our universities.

Even in the near term, we should again recall Christensen's innovator's dilemma (Christensen, 1997), as these disruptive technologies, which initially appear rather primitive, stimulate the appearance of entirely new paradigms for learning and research that could not only sweep aside the traditional campus-based, classroom-focused approaches to higher education but seriously challenge the conventional academic disciplines and curricula. For the longer term who can predict the impact of exponentiating technologies on social institutions such as universities, corporations, or governments, as they continue to multiply in power a thousand-, a million-, and a billion-fold?

We have entered a period of significant change in higher education as our universities attempt to respond to the challenges, opportunities, and responsibilities before them. This time of great change, of shifting paradigms, provides the context in which we must consider the changing nature of the university.

While many academics are reluctant to accept the necessity or the validity of formal planning activities, woe be it to the institutions that turn aside from strategic efforts to determine their futures. The successful adaptation of universities to the revolutionary challenges they face will depend a great deal on an institution's collective ability to learn and to continuously improve its core activities. It is critical that higher education give thoughtful attention to the design of institutional processes for planning, management, and governance. Only a concerted effort to understand the important traditions of the past, the challenges of the present, and the possibilities for the future can enable institutions to thrive during a time of such change.

Certainly the need for higher education will be of increasing importance in our knowledge-driven future. Certainly, too, it has become increasingly clear that our current paradigms for the university, it's teaching and research, its service to society, its financing, all must change rapidly and perhaps radically. Hence the real question is not whether higher education will be transformed, but rather how . . . and by whom. If the university is capable of transforming itself to respond to the needs of a culture of learning, then what is currently perceived as the challenge of change may, in fact, become the opportunity for a renaissance, an age of enlightenment, in higher education in the years ahead.

For a thousand years the university has benefited our civilization as a learning community where both the young and the experienced could acquire not only knowledge and skills, but the values and discipline of the educated mind. It has de-

fended and propagated our cultural and intellectual heritage, while challenging our norms and beliefs. It has produced the leaders of our governments, commerce, and professions. It has both created and applied new knowledge to serve our society. And it has done so while preserving those values and principles so essential to academic learning: the freedom of inquiry, an openness to new ideas, a commitment to rigorous study, and a love of learning. There seems little doubt that these roles will continue to be needed by our civilization. There is little doubt as well that the university, in some form, will be needed to provide them. The university of the twenty-first century may be as different from today's institutions as the research university is from the colonial college. But its form and its continued evolution will be a consequence of transformations necessary to provide its ancient values and contributions to a changing world (Rhodes, 1999).

The Last Word

As we stand at the beginning of a new century and a new millennium, the Midwest must adapt to living with change as a fact of life. Change must become woven into the fabric of our daily lives, in the way we work, relate to each other, and experience the world. We must learn the hard way that if we want to fully prosper in this new world, it is absolutely essential that we take the long view and invest in people, their education and skills, innovation and entrepreneurial efforts, and the institutions that enable these abilities, so critical to a region in the global knowledge economy.

The future belongs to those who face it squarely, to those who have the courage to transform themselves to serve a new society. The challenge is to work together to provide the Midwest region with an environment in which such change is regarded not as threatening but rather as an exhilarating opportunity to engage in the primary activity of a university, learning, in all its many forms, to serve our world as best we can.

Though one can never promise the future, we are not relieved of the responsibility of vision. Society is changing. We can either respond to these changes as active participants, constructing our own future, or we will find ourselves driven into the future by social forces beyond our control. To face the opportunities, challenges, and responsibilities of an increasingly uncertain future, the Midwest needs to rekindle the spirit of adventure, creativity, innovation, and boundless hope in the future that has characterized its history. It needs to restore sense of optimism and excitement about the future and a relish for change.

The future is not yet written, but we should not wish it any other way. The excitement that comes with uncertainty and discovery draws us inexorably into tomorrow.