Revolution and the Library

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ABSTRACT
THE FOCUS OF THIS ARTICLE IS PRIMARILY ON THE impact that the computer revolution has on college/university libraries, although many of the issues discussed here are relevant to other types of libraries as well. The university library in its present form is a product of the printing press revolution. In all likelihood, the computer revolution will have an even more profound impact on the library than did the printing press revolution.

"The library is, and always has been, the heart of a college," wrote Gertrude Himmelfarb (1999). The "always" here probably means "ever since the emergence of modern universities" rather than "always" in an absolute sense. Himmelfarb noticed that it was Gutenberg's invention of the printing press that allowed libraries to attain a prominent role in education, scholarship, and in public life in general. The libraries of medieval universities played a different role than college libraries in modern times. In the medieval university, study centered mainly on lectures and disputes and access to the library's manuscripts was rather difficult for students; professors too could not always freely use the library, especially at times of religious tensions when certain books were forbidden to readers who could not demonstrate religious and intellectual worthiness of being trusted with texts capable of poisoning the reader's mind with wrong ideas. This, together with the great material value of books (an illuminated manuscript could buy as much as a yoke of oxen and sometimes a whole farm) made a medieval library similar to a treasure house, and books similar to

treasures—i.e., highly priced, rare, desired, and used only on special fes-
tive occasions. The libraries in medieval Europe belonged mostly to uni-
versities or cathedrals. They rarely contained more than 1,000 manuscripts.
In contrast, some of the famous Arab libraries of this time had collections
of tens of thousands of books or more. For example, the collection of
books in the library of Cordoba grew to more than 400,000 titles during
the reign of the Umayyad dynasty (it ruled Andalusia starting in 932). At
that time, according to James Burke (1995), there were not that many
books in the whole of France. As Himmelfarb (1999) points out, when the
Vatican Library was established (quite late, in 1450), it had at that time
only about 2,500 volumes.

   As is well known, the invention of the printing press made the pro-
duction of books much cheaper and easier, although as Robert Escarpit
(1966) points out, the number of printing presses and the size of print-
ings were restricted by guild ordinances (p. 21). Books became more avail-
able, and the literacy rate rose because the usefulness of the knowledge of
reading and writing grew rapidly. The collections of books grew, too.

   While the number of individuals who were able to read and write
grew significantly during the centuries following the invention of the print-
ing press, the time needed for the popularization of texts grew shorter.
Dante's *Divine Comedy* needed 400 years to become known throughout
Europe, Cervantes' *Don Quixote* needed twenty years for the same, and *The
Sorrows of Werther* by Goethe, a 1774 novel that became immensely popular
all over Europe, needed only five years (see Escarpit, 1966, p. 22).

   As the dissemination of texts greatly widened, the clergy's control
over people's thoughts became more and more tenuous. The situation of
an author changed too. His (or her) words reached a much wider audi-
ence than when he lectured or produced manuscripts. As Escarpit (1966)
says, writing enabled the author to speak to posterity, "to conquer time,"
and books (especially printed books) made it possible to spread the writ-
ten word throughout the world, thus enabling the author "to conquer
space" (p. 18). However, the author of a printed text had no extratextual
influence upon the reception of his work, unlike the teacher in the class-
room with his greater interpretive control over his students' thought. This
new situation required, among other things, a different approach to lan-
guage. Two basic functions of language were especially important: it had
to capture the reader's attention and make him/her interested in the
text, but it also had to make the reader understand the author's thoughts
in the way the author wanted them to be understood. This required the
authors of scholarly texts to have special skills and intellectual discipline,
and it required the authors of fiction to have richness of language and
power of imagination. All this contributed to the development of national
languages. Latin became more and more inadequate to express the new
ideas and to describe the changing world for which the dead language did

not have proper words. In addition, books containing practical knowl-
edge, useful in everyday life, could not be read by people who did not
spend years learning Latin first.

Since the author is usually absent during the reading of a text, the
reader has to rely on his/her own mind alone. The reader cannot be com-
pletely certain if he/she understands the author correctly. This could be,
and it often was, a source of frustration, but it trained the reader's mind,
made the reader accustomed to independent thinking, and gave birth to
many new ideas that would not have occurred if the reader's thoughts
were controlled by the author of the original text. Of course, the inven-
tion of the printing press strengthened this trend significantly.

Printed texts also made it possible to acquire knowledge individually
(i.e., not through oral public presentation) and freely (i.e., without con-
trol of either the individual tutor or the owner of the collection of manu-
scripts). One of the results of this situation was the loss of belief that knowl-
edge means possession of a mystery, a *secret wisdom*, inaccessible to outsid-
ers. Knowledge became an instrument which everyone could and should
use. Faith in the power and in the universal character of the individual
human mind was born and with it a new concept of the human being. The
masses of believers who used to obey the possessors of knowledge discov-
ered that they were rational individuals capable of making their own judg-
ments and decisions. The number of possessors of knowledge greatly in-
creased with the advent of printed texts. A new faith arose: the faith that
each human being could possess knowledge and could do so by studying
books and using his own reason.

All these new phenomena contributed to the decline of the univer-
sity in its medieval form. The old universities did not offer what the public
wanted anymore. Typically, universities did not want to or were unable to
change, and they gradually became places of conservative views and sec-
ond-rate scholars, whereas many of the great ideas of that epoch were
produced either by private scholars or by court men in the service of roy-
als and wealthy aristocrats.

The sixteenth and seventeenth centuries in particular were the time
of a battle between the old and the new at European universities. New
colleges and professorships were founded by members of royal and aristo-
cratic families (several of these founders were women), notably at Oxford
and Cambridge, and in places with strong Protestant movements. Their
task was to support the scholarship that would promote ideas dear to the
founders' hearts. These ideas too were often new, controversial, and un-
tested. To pursue them required an open mind, courage, and a certain
disrespect for tradition.

When Martin Luther enrolled at the University of Wittenberg in 1508,
the school was only six years old. It had faculty members, many of whom
were not very experienced; it did not have a tradition to cherish; it was a

place where trial and error were still allowed. These were the conditions which allowed (or forced) the intelligent and knowledge-thirsty student to be quite independent and self-reliant. Often he was either encouraged by his relatively young, inexperienced, enthusiastic, and rebellious professor to be this way, or he had to rely on himself because the professor did not deliver what the student was searching for. Had he accepted fully the great and unquestionable authority of his professor, the student would have been much less independent minded.

The very concept of education became a subject of learned disputes, with the pioneering work of the Moravian Johann Amos Comenius (1592-1670) paving the road for the modern theory of education. The Roman Catholic Church responded to these new trends with its own reform of an educational system entrusted primarily to the newly founded Jesuit order.

However, the majority of universities still followed the old system, old hierarchy, and old ideas. The language of scholarship and instruction was, for the most part, still Latin. René Descartes (who did not hold a university position), commonly regarded as the thinker with whom the modern era in philosophy began, wrote his famous groundbreaking *Meditations*, first published in 1641 in Latin. There he explained in the "Preface to the Reader" that although he published his earlier work, the 1637 *Discourse on the Method of Rightly Conducting the Reason and Searching for Truth in the Sciences*, in French, he decided to write the *Meditations* in Latin because he did not want the book to be accessible to everyone, he did not want his book to be "read indiscriminately by all sorts of people, lest weaker minds be in a position to believe that they too are to set out on this path" (p. 5).

The insistence on Latin as the language of true scholars was very persistent, especially at universities. As late as 1770, Immanuel Kant presented in Latin his dissertation that was the formal basis on which he received a professorship at the University of Königsberg, although his doctoral dissertation (published in 1747 and defended in 1755) as well as all his famous late works were written in German. As a professor of philosophy in the East Prussian city of Königsberg, Kant not only accomplished what he called "the Copernican turn in philosophy," but he also joined the, by then already very vivid, public discussion on the idea of a university and on the concept of education in general by proposing his own vision of what a modern university should be.

Indeed, the eighteenth century was a time of new ideas concerning all aspects of life, including scholarship and education. This happened in great part because of the freedom of thought and the freedom of expression that were exercised by private citizens outside the constraints of traditional universities. Thanks to printed books, newsletters, and letters (eighteenth century, the epistolary century), thoughts and ideas could travel in space and time, stimulating minds. Other breeding grounds for new ideas were learned societies in various forms. For the first time, women too

participated in a visible and significant manner in this exchange in writing as well as in person in the famous salons of that era.

The nineteenth century became the time of attempts to bring these ideas to life, and often to do so by force. In the political and social sphere, the nineteenth century brought to power new forms of government and a new social class, the middle class. The industrial revolution, which was largely possible thanks to the improved production of large quantities of iron (and later steel), created not only factory workers and a new type of army; within the first two decades of the nineteenth century it also brought a new important change in the production of books. As Escarpit (1966) writes, the metal press followed by the foot-operated cylinder press, followed by the mechanical steam press initiated the period of mass printings (p. 23). ("By mid-century *Uncle Tom's Cabin* sold a million and a half copies in one year" [Escarpit, 1966, p. 24] throughout the English-speaking world.) There was need for a new effective system of research and education. Serious attention was paid to the ideas of the renewal of the university, which was reorganized accordingly. It now responded better to the new needs of the "real world" but also to the needs and abilities of the new kinds of students and professors, who were mostly individuals relying on the power of their own minds. "Sapere aude" (dare to be wise), the famous words by Horace, made into a motto of the Enlightenment by Kant in his 1784 essay *What is Enlightenment?* became a rule for scholars and students alike. They wanted to explore the physical reality and the world of ideas; for that they needed a laboratory and a library. Accordingly, the university was divided into two basic units: science and engineering on the one side, arts and letters (humanities) on the other. The heart of the former was the laboratory, the heart of the latter was the library. Since then, as Gertrude Himmelfarb (1999) wrote, "professors of the humanities . . . as much as students are the creatures of the library" (p. 613).

The modern university/college library (and many school libraries and public libraries) used to have two crucial functions: (1) it was supposed to *serve* faculty and students by providing texts *and* space to work comfortably with those texts, and (2) it *guided* faculty and students in their research and study. It did so through the selection of texts to be included in the library's collection. This kind of *content control* (a term borrowed from F. W. Lancaster) was a function of the division of labor within the humanities in the modern university. It was different (it was supposed to be different) from the medieval censorship of the content of books. The librarian in a modern university was expected to be a highly qualified, competent, well-read person, who was able to make a judgment about what books would be most useful, most inspiring, most valuable for faculty and students. In the words of F. W. Lancaster (1999), the librarians were "people capable of separating the wheat from the chaff" (p. 807). Of course, the

selection of books for the library was also a matter of resource allocation. However, even libraries with a great amount of money to spend did not buy books indiscriminately.The ambition was not as much to have a complete collection as to assist in research and study by providing resources whose quality could be trusted.

The central role of the library in the humanities division of the university is, in fact, the result of the printing press revolution. The distance in time between Gutenberg's invention in the fifteenth century and the proliferation of the modern type of university in the nineteenth century, and the many dramatic events that took place in the meantime do not always allow us to see this link at first glance. Nevertheless, it is of utmost importance to recognize it, because history teaches a very important lesson here. Yes, libraries existed almost since the time writing was invented (apparently, there were libraries in Egypt already about 2500 BCE), and yes, the copyists' workshops of Rome in the classical period were mandated to deposit copies of texts in libraries (Escarpit, 1966, p. 19), but the university library is no older than the university itself, and the first European university in Bologna, Italy, was founded in 1119. Within the university, in turn, the function and the importance of the library too changed with time, most notably thanks to the printing press revolution. Knowing all that, it is very important (at least to those in whose life a library plays a meaningful role) to ask *how* the present revolution, the computer revolution, will change the library, especially the library this article focuses on, namely the university library. That the change will occur is beyond the point of dispute; the changes that have taken place so far are already drastic enough.

A few years ago, there still were voices heard of skeptics who did not think of the computer as a revolutionary machine. Today, the phrase "computer revolution" is used almost as a matter of routine. As Gertrude Himmelfarb (1999) puts it, even some of the most skeptical historians, those who reserve the term "revolution" for just a few events in history, are now willing to accept the occurrence of a new revolution: the "electronic revolution," as she calls it.

And still the term "revolution" often seems not to be taken seriously when applied to computer technology. Sometimes it is countered with "the more things change, the more they remain the same." Oftentimes it is used frivolously. Or, by saying "computer revolution," people perform a rather meaningless ritual, not paying much attention to it at all. On other occasions, the term is used as a magic spell to keep all troubles at bay. Yet "revolution" means a truly profound and far-reaching change, not just "the next revolution in skin care." For something to be a revolution, it needs to affect all aspects of people's lives all over the world—and this is not just a phrase. Such was the printing press revolution. In the area of culture, it assured, among others, the long lasting prominence of a few

languages on a global scale; for an author, it was better (and still is today) to write in one of these languages because the reading audience was potentially much larger. Due to the necessity of translations, small nations started to face a double problem: more difficult and more costly efforts in promoting their cultures internationally, and also more difficult and more costly efforts to keep up with the achievements of the dominating cultures. Moreover, the printing press revolution created a division of nations into those with and without a modern written tradition. Repercussions of this division are still felt acutely today, for example, in places like some of the former Soviet republics, now independent states. Such countries did not develop their own national modern forms of written tradition before they were incorporated into the Soviet Union. In the Soviet Union, the Russian language and culture dominated and suppressed their own language and culture. Now these nations struggle to create an adequate scientific vocabulary in their own languages, and the literary works of their own writers often have to be translated from Russian into the national language. These nations must go today, to a significant degree, through the process that other nations went through in the sixteenth, seventeenth, and eighteenth centuries. In this sense, the printing press revolution is only now coming to its completion. It has a truly global impact now.

The computer revolution too has a global character, which is easier to see than in the case of the printing press revolution because things happen so much faster now. Today, computer technology affects the lives of people worldwide, even people who hardly know what a computer is, not to say anything about using one. For example, in the hunt for new domain names, some private companies offer money to underdeveloped countries for the right to use the country's Internet domain as the company's domain name. This way, ironically, a poor country can profit from computer technology by *not* using it.

There is one more issue regarding the printing press revolution and the computer revolution that needs to be addressed here. Writing about the present changes in libraries, Gertrude Himmelfarb (1999) notices: "The real revolution started even before the electronic one, and it started not with a technological revolution but with an intellectual one. It began a few decades ago with the attack on the 'canon'—the great books that have traditionally been thought to constitute the heart of the humanities and the core of a liberal education" (p. 615). As in every revolution, here too it is hard to draw a clear dividing line between various aspects of the revolutionary process. Usually, new ideas and new inventions stimulate one another in a snowballing process that ends up in an avalanche known as revolution.

What Himmelfarb noticed about the relationship between the post World War II intellectual revolution and the computer revolution had its equivalent in the Middle Ages. In both cases it is true that the ideas which

became truly powerful after a revolutionary technological invention were already "making waves" before the invention revolutionized culture. The problem is that the ideas became so powerful and popular thanks to the revolutionary technology. This happened in the second half of the twentieth century to the concept of education, especially in the area of humanities, and this happened also during the Middle Ages with the interpretation of Christian dogma.

Although religion seemed to be the major motivating force in human actions during the medieval period, the diverse forms of people's activities resulted, nevertheless, in the development of science and technology. This led to the growing affluence of some sectors of the population, notably the burgers of certain conveniently located cities. In turn, the new financial prosperity created tensions between the successful merchants and artisans and the Church which was protecting the officially sanctioned interpretation of Christian doctrine. The moral teaching of the medieval church in Western Europe had special contempt for two vices: pride (of noblemen) and avarice (of merchants). Alan Friedlander (2000) explains the popularity of some Christian heresies, like Catharism in the South of France, among the members of the middle class as the result of the consolation offered by heretical teachings to souls tormented by the problem of earthly possessions. "Inasmuch as they [the Cathars] considered all the things of Creation the product of evil, they condemned the pursuit of money no more vigorously than any other worldly activity" (p. 48).

However, as genuine and locally powerful as they were, the heresies of medieval Europe remained nevertheless local phenomena. The invention of the printing press changed the situation quite dramatically. It helped the local heretic, Martin Luther, to disseminate his teachings well beyond Saxony at an amazing speed. Luther finished the translation of the New Testament into German in 1522; the Wittenberg printer Hans Luft produced 100,000 copies of the book over the next forty years (Grun, 1982, p. 232). In other words, the printing press brought not only a quantitative change but a qualitative change as well. In printed form, the ideas could not only travel quicker, and reach more people than was possible before Gutenberg's invention, they also had a deeper, more powerful impact.

Similarly, the computer revolution makes it infinitely easier for those who want to avoid the literary "canon" to do so. Before the PC and later computer networks became commonplace in academia, the intellectual revolution mentioned by Himmelfarb was, despite modern mass media coverage, still a relatively restricted phenomenon. It had impact (sometimes very strong) on some universities, including university libraries, but many schools were able to isolate themselves from the new ideas. With computer networks in place, with long-distance learning, and with rapidly growing possibilities to access library collections all over the world; such an isolation is not an option anymore.

The invention of the printing press made it possible, among other things, to liberate the student from the direct supervision of the teacher. The computer network liberates the student from any intellectual restrictions of the college(s)he attends, and the restrictions of the library. This is as difficult and, for many colleges, as painful a situation as it was for medieval universities when facing the impact that printed books had on their students.

One of the features of revolution, *any* revolution, is that it is merciless to its opponents, and at best it ignores bystanders, providing that the bystanders get out of the way. Such was the power of the printing press revolution and its extension, the industrial revolution of the eighteenth and nineteenth centuries. Such is the power of the computer revolution. These are the technology driven revolutions (and they are, of course, tightly connected with political and social revolutions), and one can see in them the power of technology itself, as Michael Heim (1993), the author of *Metaphysics of Virtual Reality,* does:

> The danger of technology lies in the transformation of the human being, by which human actions and aspirations are fundamentally distorted. Not that machines can run amok, or even that we might misunderstand ourselves through a faulty comparison with machines. Instead, technology enters the inmost recesses of human existence, transforming the way we know and think and will. Technology is, in essence, a mode of human existence, and we could not appreciate its mental infiltration until the computer became a major cultural phenomenon. (p. 61)

The world in which the computer revolution has taken place will *not* be the same. This does not mean that everything will change at once. Nevertheless, knowledge of the nature of the phenomenon of revolution shows that, once a process has been identified as truly revolutionary, rational agents, including individuals who do not *make* the revolution but are "swept along" by it and have to cope with the changes it brings to their lives, should be expected to, first, accept the inevitability of change and, second, to attempt the most correct assessment possible of the true character of these changes. The third step would be prediction of further developments. All three steps can pose for rational agents significant difficulties of various kinds—i.e., psychological, cultural, cognitive, and so on.

Naturally, revolutionary changes will be embraced by those individuals who regard these changes as positive, and who feel comfortable in the new situation created by the revolution. On the other hand, the acceptance of the inevitability of change can be very difficult for those who are comfortable with the hitherto existing state of affairs. One should mention that resistance of a rational agent to the acknowledgment of an undesirable situation can take several forms. Two of them are the most common. One can follow the pattern described by William James in *The Will to*

Believe—i.e., one can accept as true a premise one wants to believe to be true and then create a valid argument with a conclusion following from this premise (for example, I believe "The more things change, the more they remain the same" is true, therefore in the end things will be as they used to be; there is no need to think that the computer revolution will cause any profound alteration of my profession, my lifestyle, and so on). Another way a rational agent could choose if he/she is not ready to accept the inevitability of change would be to make use of a feature of reason that Hegel pointed to. Hegel, not unlike the Sophists, claimed that reason is "cunning"; it can find ways to justify one's favored position. In this case, one can create an argument for the possibility (or even for the necessity) of sustaining that part of the existing status quo despite all the revolutionary changes, or at least for the sustenance of the part of the existing status quo which is dearest to the creator of the argument. It is harder to create a cogent argument here because the revolutionary process often does not leave enough time for collection and analysis of empirical data prior to the moment of necessary decision. However, the inaccessibility of empirical data can also serve as an argument weakening the anticipation of unavoidable change.

To sum up this part, profound radical changes, the heart of revolution, have supporters as well as opponents. One should note that the opponents of revolutionary changes are very likely to deny the inevitability of these changes and can create valid (if not sound) arguments to support the view they defend.

The second task a rational agent faces during a revolution, after recognizing the character of the relevant changes, is to assess the true nature of these changes. Here the proponents and opponents of the revolution have an equally difficult problem to solve. In fact, they can benefit mutually or even collaborate on this issue despite the fact that their ultimate goals are opposite. A thorough analysis of the revolutionary process can be useful for the supporters and for the opponents of this process, no matter what the ideological position of the researcher. The works of Alexis de Tocqueville and Karl Marx provide a case in point.

The third step, prediction, is by its very nature the most difficult and least reliable. In addition, the more errors there are in the first two steps, the more incorrect the predictions are likely to be.

Thinking about the future of college libraries, one needs to follow the three steps mentioned earlier: recognition of revolution, assessment of the nature of change, and the projection of future development. One needs also to avoid the traps in steps one and two in order to attain a possibly realistic projection in step three.

A revolution is a dynamic process, and the computer revolution is a process far from its completion. Nobody can tell today what the world will be like *after* the computer revolution; nobody can tell *when* this revolution

will be over. It even seems possible that what Ernesto ("Che") Guevara
wanted a political and social revolution to be—namely a *permanent revolu-
tion,* a never ending revolution—is what the computer revolution will turn
out to be. And there are phases in every revolution. When the revolution-
ary process is completed, the phases may be distinguished differently from
the way they were perceived during the revolution. Within the process
itself, certain issues have their own dynamics, their own momentum.

The history of the computer revolution is still very short; neverthe-
less, there is already a history of that phenomenon.

As is well known, computers were initially thought of as "number
crunchers," as purely mathematical machines that were supposed to serve
people in the areas where time consuming and highly elaborate calcula-
tions were needed. Word processing and some other not strictly math-
ematical features of computers were regarded initially as relatively insig-
nificant byproducts of the "real" functions computers were supposed to
fulfill; they were not much thought of by computer enthusiasts in the
earlier days of the computer revolution. This view was challenged, among
others, by James Moor (1985) who asked the question of *how* revolution-
ary a machine the computer is. Moor claimed that it is logical malleability
that makes the computer a truly revolutionary machine. He challenged
the"popular conception of computers in which computers are understood
as number crunchers—i.e., essentially as numerical devices" (p. 269). He
wrote further:

> The arithmetic interpretation is certainly a correct one, but it is only
> one among many interpretations. Logical malleability has both a syn-
> tactic and a semantic dimension. . . . Computers manipulate symbols
> but they don't care what the symbols represent. Thus, there is no
> ontological basis for giving preference to numerical applications over
> non-numerical applications. (p. 270)

Obviously, Moor was right, and today word processing and non-nu-
merical computer applications are almost overshadowing the numerical
ones, at least in the minds of the general public. But in the early days of
the computer revolution, the general perception of the kinds of applica-
tions a computer performed was different. The word processor was re-
garded (then probably rightly so) as not much more than an improved
electric typewriter, a standard tool of almost every scholar. This, by the
way, was quite similar to the initial treatment of print. The early printed
books, incunabula, resembled medieval manuscripts—it took time to de-
velop a new form of a book, more suitable to the new technology. And
when it comes to visual artistry and colors, only twentieth century books
can really rival medieval manuscripts, but they no longer belong in the
same league with these manuscripts.

Considering the above, it is only natural that at universities comput-
ers were first introduced in science laboratories, and the humanities

seemed not to be in "danger" of any significant computer "invasion." The same, of course, was true about the university library. As often happens, schools that were not very prestigious, especially the relatively new, less tradition-bound, liberal arts colleges were more ready to experiment with the new idea of using computers in their libraries than were the well established schools. In the late 1980s, when many college libraries computerized their catalogs, Harvard University still hesitated. Considering the capacity of its collection, the cost of re-cataloging was obviously very high, hence the resistance to take the risk if computers would prove to be an ephemeral occurrence. It was better to wait and see how others fared. It is also quite possible that the library was *liked* very much the way it was, and changes were not really wanted or needed. In any case, the situation then was comparable to the time after the invention of the printing press when new schools that had little to lose and much to gain were more open to new ideas than were the prestigious well established ones.

Things changed quickly, however, and presently one can hardly find a college library in the United States without a computerized catalog, connected to the network of other libraries, offering various sophisticated services computer technology makes possible, and so on. It is enough to leaf through several issues of journals like *Library Trends* to see how much the problems that occupy library professionals today differ from those of several decades ago.

Computers invaded the world of academia, whether they were invited enthusiastically or with resistance and sometimes even with fear. Again, the difference between the "sciences" and the "humanities" was clear; in the sciences, it was obvious that computers were to be embraced as good and as the way leading into the future. In the humanities division of the university, with its "heart" being the library, the feelings were mixed at best. Here, the above described (often negative) reactions to revolutionary change could be seen quite easily. Actually, in the early days of the computer revolution, when it was not yet clear how aggressive the new technology would be, the on-campus division between the sciences and humanities even deepened in the sense that individuals who tried to avoid dealing with computers were more likely to choose humanities in the hope of finding a safe haven there. Also, like attempts to resist life-changing inventions in the past, studies were conducted and theories presented which were showing the harm that computer technology will do. Marshall McLuhan became popular again, and Neil Postman's criticism of a culture dominated by technology met with widespread applause. Like Plato's contempt of the invention of writing, expressed in *Phaedrus* in the story of Thamus, we, too, often seem to be full of contempt when we think about the possibility of replacing books, or maybe even of replacing writing at all with another form of storage of information and another form of communication. And, of course, we are right if we value highly what the

world of printed books has to offer because we do not know whether we will like the new world formed by computer technology.

Changes take place on college campuses, in libraries as well as in classrooms. Many colleges and universities, with maybe the exception of the highest ranked elite schools, notice a significant change in the student population. The student population is not only more diverse in terms of race, ethnicity, and age but also often has a different attitude to the study process and to a college education than had the previous generations of students.

With the dramatic disappearance of manufacturing jobs in the United States, especially over the last decade, many more people than ever before consider getting a college education. There is, however, an interesting shift noticeable in the motivation of college students and in the value/meaning of a college education. In the past, roughly speaking, a typical college student belonged to one of the following groups. A student was either (a) a person with a passion for knowledge, (b) an ambitious social climber who did not want the job and the social status his (or her) parents had; or (c) there was always a group of students, often from the privileged social strata, who treated college as their playground and did not care much for obtaining "bookish" knowledge. Today, these three categories of students are joined by a new group—(d) students who would not consider a college education if there were jobs available for them that would secure a "decent living" (this term, obviously, has a very wide range of definitions) without a college diploma.

An important difference between students in groups **b** and **d** should be noticed. Group **b** students are the "escapees"—i.e., they do not want the job nor the lifestyle of their parents. They will do "what it takes" to advance, and often they are genuinely enthusiastic about knowledge and about studying. In humanities, these are the students who, like the group **a** students, saw the university library as a sanctuary and books as objects of admiration and desire. Group **d** students would gladly follow their parents' footsteps, they would like to have the jobs their parents used to have if these jobs (e.g., the good jobs of skilled factory workers) were there. But these jobs are gone, and the parents of these young people are often nostalgic for those jobs, idealizing the "good old days." The alternative for the children is either unskilled low-pay labor or jobs that require a college diploma (not always requiring much more knowledge and/or skills than the old manufacturing jobs). So they choose college as a "lesser evil." Often, they focus almost exclusively on preparing for the test and are not interested in knowledge "as such." This does not motivate one to read for the pleasure of reading. These students, often uninterested and unwilling to do anything beyond a minimum requirement, are a new source of frustration for college faculty. A big problem, of course, that resurfaces constantly in faculty complaints is the issue of reading.

The widespread opinion among college faculty is that students do

not like to read. Alarmingly, many students do not like to work with books. They do not like to take books in their hands to search for the right volume in the library. They do not enjoy the physical contact with a book. In addition, books (textbooks and others) have become progressively expensive. Many students did not grow up in households in which the presence of books and the habit of reading existed. Students do not understand long complex sentences in which many of the great books were written, and they are taught that it is wrong to write in such sentences. There are several reasons why students try to avoid classic texts (I refer here to the western, specifically American, tradition only). Some avoid reading for "ideological" reasons, not wanting to read texts written by "Dead White Males." Some students have difficulties with understanding such texts. Lack of training in languages, especially Latin, and poor knowledge of history often make understanding an author's point of reference impossible for the student. There are also students with an insufficient command of literary English. After all, reading is a difficult skill to master. (We tend to forget that the really serious worldwide "war against illiteracy" started at the end of the nineteenth century, became effective after World War II, and has not ended yet.) Reading requires a special, very abstract, kind of thinking. The overwhelming majority of scholars, especially in the humanities, have chosen this kind of career because they never experienced difficulty in learning how to read and write. To them, reading and writing skills came "naturally," usually at an early age, and they have difficulty understanding how it could be otherwise. Hence, they usually have little patience and/or sympathy with otherwise quite bright young people who struggle through a text. On the other hand, the young people were often "spoiled" at a younger age by parents and schools who placed the bar of academic expectations very low and were committed to the "feel good about yourself, no matter what" approach. The culture itself, predominantly in the United States but progressively all over the world, does not support attitudes that are necessary in the humanities—i.e., the love of reading. Reading is time consuming and can be very laborious; the American culture is a culture of "quick fixes," of speed, and of labor-saving innovations. To gain substantial knowledge through reading, to become a true erudite, requires many years; the American culture is a culture of quick rewards, short memory, and disrespect for old age. The American culture tends to measure the value of a human being according to the amount of money an individual was able to accumulate in as short a time as possible. Given all that, to choose the humanities or any profession that requires extensive reading means a bad investment, a bad business move. These are just a few of the existing problems. In addition, the fact that the overwhelming majority of classic texts do not exist online reinforces students' association of books with an unpleasant unwanted activity.

There are many alarm bells ringing in order to bring the issue to the attention of all those who might have any power and/or influence to solve the problems of education that occur on all levels. Computerization is, obviously, cited very frequently as a panacea, especially by politicians and by people whose business is computer technology, but they seem to not pay much attention to libraries. One of the chapters in *The Road Ahead* by Bill Gates and his collaborators (1995) is entitled "Education: The Best Investment." However, neither the chapter, nor the book in general, devotes much attention to the issue of the library. Education seems not to be tied to the library in any crucial way in the mind of Gates and his collaborators. So, perhaps Gertrude Himmelfarb (1999) was right linking Bill Gates with Jacques Derrida:

> If I were given to conspiratorial theories, I might speculate that Bill Gates, the chairman of Microsoft, is a secret agent of Jacques Derrida, the high priest of postmodernism. For the new technology is the perfect medium for the new ideology. Surfing through cyberspace is a truly postmodern experience, a liberation from what the postmodernist calls "linear thinking"—a logical rational mode of reasoning. (p. 617)

Like Neil Postman, Himmelfarb too seems to warn that once we lose the ability of linear thinking we will lose the ability to access the world of books as well. This would mean not only that the great library collections probably will become archives, visited only by specialists, it would also mean that civilization based on the preservation of ideas in the form of writing will become a thing of the past. And, by the way, following Lancaster's concern about the growing dehumanization effect computers have on society, one can ask if they (computers) will need books. The touching scenes from the movie *Bicentennial Man* with the robot dutifully and eagerly studying books in order to become more human are not very convincing to me.

Similarly to Gates, Esther Dyson (1998) devotes less than one page to libraries in her bestseller *Release 2.1* in the chapter entitled "Content Control"; in the chapter entitled "Education," libraries are all but absent. However, Dyson makes an interesting remark worth quoting—in parentheses— on the changing role of libraries:

> How the Net changes the role of libraries overall is an interesting question: Their role as financial intermediaries changes from buying books to providing Net access; whereas once they could finesse decisions about controversial books because of tight budgets, now they have to decide explicitly what to do about access to Net-based materials that may offend some in their communities. Meanwhile their role as guides and as community centers is increased, and they must reach out to those who can't afford what better-off people have at home. (p. 208)

The university library and the university itself are doubtlessly in the process of revolutionary changes that will result in a concept of producing, disseminating, and storing knowledge which will be very different from what we were used to. Perhaps it will result in a new concept of what is knowledge.

If one would treat things adequately to the meaning of words that describe them, no one should call collections of texts prior to the fourth century (when the manuscripts of bound sheets of velum proved to be better than a roll of papyrus sheets) a "library," and yet we do so. We will probably use the word "library" long after the only "real" books will rest on the shelves of some "archive," "museum," or "rarity" section or in a building that will not resemble at all the library as we know now. The question is what, if anything, will we value so much that it will be considered worth being treasured in a way similar to that of books?

For now, the trend in libraries seems to be, as Lancaster pointed out, the acquisition of skills related to various aspects of computer technology. Lancaster (1999) worries: "If these technological skills are really the most important ones needed by the modern librarian, we are indeed encouraging the complete dehumanization of libraries" (p. 808). It is too early to predict what really will happen. Right now, almost anything is possible although not everything is likely to happen: from a complete decline of a library as we know it, to a renaissance of a traditional library as a place of refuge from the dehumanized world and immersion in what really matters to a thinking human being. No matter what happens, it will reflect the radical turn in the path of human kind that was caused by the computer revolution, a daughter of the printing press revolution, and the granddaughter of writing. Recalling what Robert Escarpit (1966) has written, "writing enabled the word to conquer time, but the book enabled it to conquer space" (p. 18), one might wonder if, with computers apparently nullifying time *and* space, we have finally approached the possibility of solving the problem that caused the invention of writing in the first place: our need and our desire to share our thoughts and ideas with more people than those present at a given moment within hearing distance from us. The big question then would be, what kind of thoughts and ideas will we have? Will they be worth sharing? What will we do with them? Will anyone guide us in our searches the way great teachers, great books, and great libraries used to?

These questions have existed for a very long time. The more things change, the more they remain the same.

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