

# What the Future Holds for Libraries and Librarians

Leon Martel

Some of you may have noticed a couple of years ago in December of '79, the *Saturday Review* published a list of two centuries of embarrassing predictions with a very fetching title, "It Will Never Fly, Orville." Well, I think by way of introduction a couple of these are worth noting.



Robert Fulton was trying to present his new invention to Emperor Napoleon, and Napoleon said to him, "What Sir? You would make a ship sail against the wind and currents by lighting a bonfire under her decks. I pray you excuse me. I have no time to listen to such nonsense." And so Napoleon lost the chance to have a steam engine.

Admiral Lahey, in another war, he is later the Chief of Staff to Harry Truman, gave his evaluation of the atomic bomb. He said, "This is the biggest damned fool thing we have ever done. The bomb will never go off and I speak as an expert in explosives." So much for expertise.

My favorite though is that of George Templeton Strong, back in 1865 the year some of you would probably rather forget. But anyway, George Templeton Strong said this about New York City: "By the year 1900 Brooklyn undoubtedly will be the city and Manhattan will be the suburb. Brooklyn has room to spread; Manhattan has not. The New Yorker uptown on 35th Street already finds it a tedious and annoying job to commute to his business downtown and home again. Can you imagine him fighting his way all the way up to the pig farm on 100th Street, forty years hence." Well, I live on 110th Street. So I am a little sensitive to that, and I must say it is just as crowded up there as it is down on 35th Street, and we haven't moved to Brooklyn yet.

Well, I think this last forecast probably led to the inclusion of the following statute in the legal code of the State of New York: "Persons pretending to forecast the future shall be considered disorderly, under subdivision 3, section 901, of the Criminal Code and liable to a fine of \$250.00 and/or six months in prison." Well, Bill has assured me that there are no such statutes in the State of North Carolina, so I will go ahead with my forecast and projections about libraries and librarians in the future. We do have to take the risk; we do have to make forecasts about the future.

There was an automobile industry executive, I think, who said it rather neatly once, really quite simply, but I think quite truthfully. He said we should all be concerned about the future because we will have to spend the rest of our lives there. More specifically, in order to make any plans about the future, we need to have some notion of what it will be like. Unless we have an image of the future, planning for it simply cannot be done. But it has been increasingly difficult, especially of late, to create a credible image for the future. It has been very difficult to make any kind of assumptions with some confidence that they might be accurate. It seems that today, and certainly in the foreseeable future, the trend is one of instability and uncertainty. We face today very rapid technological change. We certainly face sudden political upheavals. We only have to look back to the events a few days ago in Cairo to illustrate that. We face changing social behavior, even within generations now. Certainly we all know a very uncertain economic environment. So it is very hard to decide what to do today, let alone to plan for tomorrow. Yet I think much can be known about the future. I think that we can discover things that are useful to us, that enable us to do the kind of planning that we have to do to get the future that we want, and I think the key to discovering knowledge about the future is to take a long-term perspective, not to focus on present trends for present trends always change.

There is a new study of the future that was issued last year over the signature of the then President Carter. It was one of those big government studies; it was designed to take a year and it

ended up, of course, taking three years to finish, and it is very big. It is about the size of a Manhattan telephone directory, and it begins with these four words: "If present trends continue." At that point throw it away. The whole study is worthless. Because if there is anything that history teaches us, it is that present trends never continue, they may get better; they may get worse; they don't continue. So we have to take a longer look. We have to take a long-term perspective. We have to see the change that is in fact occurring. That longer look, I think, can tell us a lot about human behavior. It can tell us a lot about trends, about their direction, about their magnitude, and about their rate of change. Understanding these trends in human behavior will enable us to make better judgments about what is happening today and also better assumptions about what is likely to happen tomorrow.

I would like first to talk about some major trends in human behavior and human activity that can help us understand what the future will be like. Second, I would like to explain what the implication of these trends are for the future of libraries and librarians. Then, third, I would like briefly to conclude with a few suggestions that sort of fall out of this analysis, this view of the future.

### **Trends in Human Behavior and Activity**

Let me begin with several trends in human behavior and human activity, trends that I think can tell us a great deal about what the future will be like. The first of these trends was developed in some length in the book, *The Next 200 Years*. This first trend is a great worldwide transition that we are in the midst of now, a transition from a pre-industrial era that ended about two hundred years ago, through an era of industrialization we are in now, to a post-industrial era that may commence perhaps about two hundred years from now. Hence the title of the book we wrote — *The Next 200 Years*.

In most of the advanced nations, the pre-industrial era ended at the time that we shifted from using animate energy to using inanimate energy and of course producing a great increase in the amount of energy available to us, enough to run factories and manufacture things. About two hundred years from now this industrial transition will be completed, and we will move into the post-industrial era. The main characteristic of this big transition is occurring is the nature of the economic activity that takes place in each nation as it passes through the transition.

When a nation is in its pre-industrial stage, its principal economic activities are the activities that we call extractive, like agriculture or mining or fishing. They generate little growth. The nation's growth is rather stagnant. Then as the nation enters the period of industrialization, it becomes more and more involved in manufacturing, in fabricating things, in building things, and its growth rises very rapidly. But as the nation becomes more industrial and more advanced, the first symptoms of the post-industrial era begin to develop, and those symptoms are an increase in service sector activities in trade, in finance, in communications, in education, in health, in entertainment, in leisure activities, in government, and, of course your activities, in the knowledge activities and librarianship. There will still be manufacturing, of course, by the time we reach the post-industrial era. We handle all our manufacturing just as we handle our agriculture today, with a small percentage of the people, and it will occupy a small percentage of our Gross National Product. This is the main characteristic of this great transition from pre-industrial which is largely agricultural through the industrial era which is largely manufacturing to post-industrial which is largely service sector in its activities.

Now this is a very important transition, because, when a nation passes successfully through it, it gains a great deal. Its economic growth increases very rapidly and that means that the per capita income of its citizens increases, and they live longer. They live healthier lives; their standard of living improves; affluence and prosperity are shared by more people; and, in effect an individual's life changes from one devoted to satisfying needs to one that increasingly can turn its attention to trying to satisfy wants. We move from needs to wants.

Population changes too. In the beginning death rates and birth rates are brought steadily down because of better food distribution, better health care, disease control and so forth. Then as prosperity continues, people realize that they don't have to have large families to take care of them in their old age because children survive childhood diseases better, because there are various programs to take care of their post-working years. So we have smaller families, and the birth rate falls. As the birth rate falls, the population and growth rate slows down, making the society more efficient.

The product mix changes and occupations change with it too. There are more labor saving devices, more sophisticated equipment. The blue collar population grows relatively smaller; the white collar and service occupations grow relatively larger. Perhaps most important attitudes and

priorities change. There is a greater interest in enjoying what one has and less of a strong desire to achieve. There is a greater interest in having satisfactions now rather than postponing them as our parents did and as our grandparents before them. There is a greater interest in leisure, in leisure activities, and there is also greater concern about preserving and protecting what one has. Hence, a tremendous interest in health and comfort and safety.

Now today the world as a whole, if you aggregate all the nations, is about half way through this great transition, and each nation is somewhere along the transition. Some, the poorer nations, the less developed, are further back. Others, the most advanced nations, are further along. The United States, the most advanced of the world's nations, is well along that transition, well past the mid-point, really a super-industrial nation on its way to being post-industrial.

Only two percent of our labor force are on the farm, and yet it produces enough to feed not only this nation but for export as well. Over sixty percent of our labor force are in service industries, and that number is rapidly growing while the number in manufacturing is staying steady, or in the last couple of years beginning to fall slightly. The annual population growth rate of United States is below one percent, and it is falling. That means we will hit a zero rate, probably shortly after the turn of the century. That will result in a more or less stable United States population in about fifty years, probably at a range of around 175 million. We are more affluent than we have ever been before. Our median income may have periods, as it is right now, where it goes down, but steadily over the years that median income has gone up, and it will continue to rise. The average American family today has 100 thousand dollars in assets, whether it be real estate or savings accounts, or stocks, or automobiles or trailers, or whatever. That is more than twenty times what the average American family had fifty years ago. Most have enough for their needs. Perhaps most important those needs like food, cost relatively less each year. There is more to spend. There is more disposable income, more to satisfy the wants. This is the first and perhaps most important long term trend in human activity that can tell us about the future, and it really means a fundamental change in the structure of society and the way society operates.

### **Increase and Application of Knowledge**

Now there is a second trend that we can also note, and that trend is the continuous increase of knowledge, of discovery, of invention, and the application of knowledge and discovery in technology. Because we had the growth of industrialization we had a surplus of funds, a surplus of time, a surplus of resources that we could devote to research and development. This has meant a tremendous impetus to learning and to the increase of knowledge: knowledge about the world, knowledge about ourselves, and the application of that knowledge in technology. It seems to be the nature of discovery and invention that each piece of knowledge, each discovery spawns not one, but two, three, or several new inventions, discoveries and knowledge. This is a rapidly accumulating process growing explosively, virtually exponentially. It surges for a time in basic research, then there is the consolidation, the application of findings and new technology and new products. Then another surge, but always larger, always more knowledge, invention, discovery, technology. We can see this in a number of fields today. Perhaps you can see it best when you stand back and take that long-term view: (1) Medicine: holistic diagnosis which attempts to look at the entire patient, even to discover what has happened to a particular part of the patient's body, or a particular illness the patient may have; (2) Genetic engineering: awesome implications for altering heredity as well as the possibility of aiding some diseases; (3) Micro-surgery: transplants with artificial organs which can be reproduced, which don't wear out, and which are cheaper; (4) Agriculture: new crop strains, nontill farming, the beginning of specialized environments for growing foods such as hydroponics or even manufactured food; (5) Energy: shifting from an era of non-renewable energy resources to renewable eternal sources.

We can anticipate that within the lifetimes of some of us, certainly in the early years of the next century, eternal resources will be coming available. I suspect that there will be a time when future historians will look back with barely concealed amusement at our concern about an energy crisis in the 70s and the 80s. They will really wonder what the shouting was all about. Because that problem is a transitory problem, a problem on its way to solution.

Perhaps nowhere is the explosion of technology seen more vividly than in the information sciences. Low-cost microprocessors, all those circuits on a very tiny chip, really mean a second computer revolution. Increasingly we are able to monitor, and control activities in our automobiles, in our homes, in our factories, and in our offices. In our schools we find the use of the computer is being taught at lower and lower grades. In fact computer literacy is going to be an adjunct to traditional literacy. It will really be the three Rs plus C for computer. At home the new

technologies that have been developed for transmitting signals, cable and satellite, and the new technologies for displaying them that are just coming in now herald a video generation. Perhaps the 40s was the radio generation, and the 50s the TV generation, and the 60s color TV, and maybe the 70s stereo, and the 80s will be the video generation. In our offices, in your libraries, the marriage of the computer and the typewriter hooked up with the telephone revolutionizes the whole process by which we store information, retrieve it, and exchange it. So this is another great trend in human activity, in human behavior, the relentlessly increasing advance of knowledge, discovery and its application.

### **Cyclical Nature of Human Decision and Activity.**

The third trend is a trend that is perhaps the least clearly understood. That trend is the cyclical nature of human decision and human activity. As individuals and as groups, we do set goals, and we do become involved in activities in pursuit of those goals. These activities become habitual. They become familiar and comfortable. We are reluctant to change them. But eventually we do change as we achieve or fail to achieve our goals, and our actions create new problems and new goals. In other words, there is a continuous feedback mechanism in operation here that causes us constantly to make adjustments, make corrections, compensate, to steer us in the direction we wish to go. The result of these actions and adjustments, whether they are done individually or done collectively, is that the record of human activity is not one of smooth trends. It is characterized by swings: by more, by less, by up, by down, by concentration, and by dispersion. Wars are followed by a return to the status quo, by periods of stability, by the creation of new institutions to prevent wars in the future. Economic booms are followed by recessions, and recessions are followed by booms. Rising prices in commodities are followed by decisions to use less and to produce more. When these swings occur, they create problems for us because for the most part, we are still behaving in accordance with the old cycle. The change is jarring; the change is often painful, and always it requires adjustments. This third trend, I think, helps us understand change and helps us understand how to adjust to it.

So here are three major trends then in human activity and human decision, clear, well established trends, trends that will continue in the future, and that can allow us to understand that future much better to give us a better sense of what is happening today and what will happen tomorrow.

### **Implications for Libraries**

With these three major trends, then, of human behavior as sort of background, what can we learn from them about the future of libraries and librarians? The transitions that I mentioned, the great trend of the transition from pre-industrial to industrial to post-industrial yields a very, very important insight. During that phase of industrialization, the phase in the middle of the transition, the phase we are in now, the principal economic activity is manufacturing. Because of that, society is organized around energy. Energy is really the guiding, controlling force of society during this period of industrialization. But, as society moves toward the post-industrial era, the principal activity becomes more and more the delivery of services; and, here society is organized around something different. It is no longer organized principally around energy. It is now organized principally around knowledge. Knowledge becomes the guiding, controlling force in society as it approaches and enters the post-industrial era.

Librarianship may not be the world's oldest profession. I understand another profession claims that distinction, but perhaps we could make a case for the fact that it is the second oldest because the evidence of the existence of libraries is very old. It shows us that as early as the time of the Assyrians, the ancient Egyptians, three or four millennia ago, there was evidence of libraries and people employed full time to put them together, to maintain them, and to distribute their information. As now, there was then, a group of what we could call knowledge professionals who were in the service occupation of accumulating knowledge, of maintaining it, organizing it, and of distributing it. Now as society becomes more post-industrial and as knowledge becomes more central to that society, this role of knowledge professionals will grow in importance, and of course, it will change. The basic functions will remain the same. They will still be acquiring and organizing and cataloging and circulating knowledge, but the process by which those functions are accomplished will change radically and rapidly. It is a simple economic fact that the costs of hardcopy publications are rising while the costs of electronic data storage are falling, in fact, really plummeting. And, it is a simple physical fact that the speed and ease of finding and retrieving information is far greater with machines than it is manually. Already, we see current awareness



information, news, stock quotations, weather, entertainment listings, and so forth, becoming more electronically stored and retrieved. Soon this will be true of most reference materials, particularly those that require updating like handbooks, atlases, encyclopedias, dictionaries. In fact we may be living, we are probably living, in the last generation of hardcopy reproduction of such materials. In the future publication directly into data bases will be cheaper, easier to update, and more readily retrievable. Now this does not mean the end of hardcopy publication. The hardcopy will frequently be the desired end product of an information search. That copy will be made so that we can have that record, a permanent record. And society with more leisure will continue to turn to knowledge and to poetry and to biography and to non-fiction, to all forms of literature as part of its pursuit of entertainment, enjoyment, self-fulfillment, and self-enlightenment. It will turn, too, to audio tapes, video tapes, and video discs, thus further enlarging the role of librarians in the post-industrial society.

But not only will the role of librarians become more important as the post-industrial society comes on, but that role will also be greatly enlarged. The pace and the breadth of industrialization causes us to think in terms of non-renewable materials. It causes us to think in terms of finite sources of things to suggest scarcities and the endings of certain materials, of shortfalls and shortages. Knowledge though is just the opposite. It is quite different. The problem with knowledge is not that we are running out of it, the problem is that we are accumulating more and more of it. Furthermore, we are not using enough. It doesn't disintegrate; it's rarely lost. Once we have it we have it for all time, for good or for bad. We can't uninvent the atomic bomb, for example. Usually, the more we have, the more we want; and having knowledge, of course, is the best way to get more. So the drive for knowledge is continuous and it is unending and so, too, is the need for the knowledge professionals to accumulate it, organize it, and distribute it. But the continuation of knowledge and the enlargement and broadening of the knowledge professionals in their role also raises a problem. We know that it is society as a whole that accumulates knowledge, but it is individuals who must have it to be able to use it. So we have a problem, the problem is distribution. How do we handle that problem?

In a free market society the goods are supplied in relation to demand, and price is used as the market clearing mechanism. If one is making and selling clothes, the price that is charged is a function of the cost for materials, for labor, for rent, for utilities, and the margin of profit that one desires. But how do you set a price for information, for knowledge. It's unique; it's imperishable; it's abundant; it's expanding and often it's extremely valuable. Who pays the costs? I would suggest that there is perhaps no question today that poses greater difficulty than this for your field, for the knowledge professionals. Who pays the costs of knowledge, and for some insight in handling it?

I think we can turn to that third trend I mentioned, the cyclical nature of human decision and human activity. Fifty years ago we suffered the disease of the 30s, the disease of depression, a disease that was marked by falling prices and rising unemployment. The solution to the disease was a massive government effort to create jobs, to stimulate demand, to protect incomes, to protect homes, to protect property, all through a panoply of measures that we refer to now as the programs of the New Deal. These programs succeeded. They succeeded so well in fact that they were continuously enlarged and continuously expanded most dramatically through the Great Society programs of President Lyndon Johnson. But, success has had a price: the price of finally undermining the base for the financial support of these programs. And, success has contributed to a new disease: the disease of the 80s, the disease of inflation. The reaction has been a new cycle of activity represented of course by the American people deciding on a new administration with a new approach and a philosophy to reduce government involvement and government programs after their continuing increase, after their success really of now fifty years. It is in this context then, this cyclical change that is occurring, that we have to address the question who pays the cost for the accumulation, the preservation, the distribution of knowledge?

The ready answer in the current political mood is of course those who use it. But that answer is insufficient when we are talking about knowledge because we all use knowledge. In some cases, the costs are unusually difficult to measure. Now certainly for specific services, access to data bases, online information systems, and so forth, prices can be set and paid, and they should be even though we are really not quite used to doing that yet. We have to think about that and act accordingly. But it is much harder to find support for the pool of personnel, for the equipment, for the resources from which these services are developed. For some of this, our governments, our federal and state and local governments, do have a role as they always have and should play that role. But we need more, we need something else.

I would suggest that we need new linkages and new lines of support between the users in all the professions and you, the knowledge professionals who are accumulating, organizing, and distributing that knowledge; new lines of support can be built. They can be built in a number of ways. Let me suggest one, and that is through the professional associations: the professional associations of both groups, of the professionals who use your knowledge and of your field too. Through such linkages needs can be identified, plans can be made, and programs for support can be structured. The alternatives to finding these other means, such as these linkages, are to leave the whole job to the government where it will be underfunded and where it will be, in some cases, turned over to personnel untrained for this work, or to leave it undone. To leave it is to forfeit the abundant future we can have.

### Summing Up

Let me sum up now. Three major trends can help us understand the future. First, the great transition from pre- to post-industrial, the transition from widespread poverty to widespread affluence. This transition indicates fundamental changes in the structure of society in the way it operates. Second, the continuous rapid increase of knowledge, of discovery, of invention, and its application in technology; and third, the cyclical nature of human decision and human activity which explains change and our reactions to it.

These trends profoundly affect the future of libraries and librarians. It is not an exaggeration, I think, to say that these trends imply nothing less than a revolution in your field because they are radically changing structures and procedures that in many cases have been unchanged for decades or even longer. They are changing them in a very, very short time. This is a service profession in a coming post-industrial era when services will be the dominant economic activity of society. The service that your profession provides is knowledge, which will be the central controlling force of that society. It is an expanding profession, but that expansion rate is the vital question of how the service is to be financially supported. Answering that question requires programs and procedures that are as new and different as the expansion that demands them.

Let me wind up now by offering to you three general suggestions to guide you as you face a challenging but obviously what could be a glorious future, at the center of the post-industrial society as its principal agent in providing knowledge. These suggestions are meant to assist you in your professional lives and your personal lives as well.

The first suggestion is the importance of taking a long-term perspective. A long-term perspective sensitizes us to the most important wisdom we can have about the future, and the most important wisdom that we can have is that it will be different. It will not be a simple continuation, a simple extrapolation of what is happening today. A long-term perspective gives us a much better sense of what can be accomplished and what will be required to accomplish it. It enables us to understand the changing direction, magnitude and pace of human activity. A long-term perspective truly can make possible a future by design rather than by default.

Second, there is the necessity of learning to live with uncertainty and change. This is a profession as I suggested that went for many, many years without significant change in any of its basic structures and procedures. It means recognizing that the tried and true ways of the past are not necessarily the best for the future. They may be, but not just because they are the ways of the past that worked then. It means realizing that new technologies are bringing processes and new products, and they are doing so very rapidly. It means knowing that ups and downs in the business cycle require more explicit planning, much more "what if" kind of planning in our professional lives and in our personal lives. In the future those who succeed will not be those who seek to avoid change. Those who succeed will be those who make change their partner.

Finally, we need a new image of the future. Uncertainty, instability, are hard conditions to live with. They can be very depressing; they can contribute to the view that we are no longer in control of our destinies, that others, that fate will determine our future, that there is nothing or very little that we can do. We need to expunge such attitudes; we need to expunge them with a new image, an image that stresses our capabilities which are considerable, not our limits which are just that, limited. We need an image that emphasizes what we can do, and not what others can do to us. Yet we find the pessimistic images of the doomsayers and the gloomsayers are still heard and taught across our lands. Ask your school children what they are learning in school, or look to the Global 2000 report that I mentioned issued over the signature of the President last year. If unchecked, these pessimistic images could indeed become a self-fulfilling prophecy. But if a prophecy of gloom can be self-fulfilling, then so, too, can be a prophecy of hope.

Let me conclude on a note of hope because that is the note that my studies leave me with, and that is the note I want to leave you with. Let me conclude with a metaphor. It is a metaphor you may have heard because it is popular with the doomsayers and the gloomsayers. The metaphor goes like this: It depicts the five billion year physical history of the earth thus far as a twenty-four hour day. On that basis, it points out that human history has taken just the last five minutes of those twenty-four hours and recorded history just the last few seconds. Well the implication of the metaphor stated in this fashion is, of course, that midnight is near, that the day is almost over, and the earth too. I prefer to look at the metaphor differently. There is a general guess among physicists and geologists that the earth may last perhaps ten billion years more. If so, a third of the earth's history has passed. On the basis of that twenty-four hour day, it is now 8:00 a.m., the sun has just risen, the day has just begun, and it is time to go to work.



Peggy Sullivan, past-president ALA, speaking about "Libraries and the Pursuit of Happiness."