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Dimensions of Liberal Education at Brockport

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DIMENSIONS OF LIBERAL EDUCATION AT BROCKPORT

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An Instructional Development Project of the
Educational Communications Center
State University College at Brockport
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Preface

The history of the Dimensions of Liberal Education course, and hence of this book, is tied to the evaluation and redesign of the General Education Program at Brockport. General Education is that part of the Liberal Arts Curriculum that provides a foundation in basic skills and ensures that students take a prescribed breadth of courses beyond their selected majors. Since the history of Liberal Arts programs is covered in detail in Chapter 10, "From Socrates to Brockport: Your Place in a Long Tradition", I will not describe that history here. Suffice it to say that the decade of the 1970's was one in which General Education programs across the country were being carefully examined. Brockport was no exception. In 1976 a faculty Task Force specified nine goals for General Education on our campus, and found that the college's program was "seriously deficient" in meeting those goals. In the Fall of 1977 a large number of faculty representing all areas of the college began deliberations in order to develop a comprehensive new program. In the Spring of 1979 the resulting program was recommended by the Faculty Senate of the College and accepted by President Brown.

The Dimensions of Liberal Education course was an integral part of the new program. Data that had been collected at Brockport (as well as in nationwide studies) had indicated that those students who had a good understanding of their goals were most likely to successfully complete college. An analysis of our own students' preparation demonstrated that few had an understanding of the basic philosophy or rationale for a Liberal Arts Education. The DLE was designed to increase students' understanding of the meaning of a Liberal Education, to aid students in making informed choices in selecting courses for their college program, and to provide a foundation for a supportive relationship between faculty advisors and their students. Furthermore, the DLE was designed to
orient students to the college experience and to provide useful guidance in how to get the most out of the unique opportunities present in a college environment.

During the Fall of 1979, 18 sections of the DLE course were taught as a pilot project. In the course of the term the participating instructors were frustrated in their attempts to find appropriate learning materials that would cover the range of topics mandated for the DLE. What was needed was a book of readings written specifically with college freshmen in mind. Brockport is fortunate to have a support area to meet just such needs. Although the Educational Communications Center is usually thought of as a media center, it also assists faculty in the development of all kinds of instructional materials through its Instructional Development Program. This program consists of the efforts of a staff of full-time professionals who carefully analyze instructional problems, design and produce materials to address those problems, and evaluate the effects of those materials on the learning process. This book is the product of an instructional development project.

When I was given the honor of editing the sourcebook, my first task was to seek a board of respected faculty members who could balance my own perspectives with the weight of their combined experiences in a range of campus programs. This editorial board would ultimately serve to define the topics to be covered, to provide many valuable suggestions concerning potential authors for each of the chapters (many willingly volunteered to contribute essays themselves), to read and make helpful editorial comments on the drafts of the essays, and basically to provide breadth and depth to the project. Without the labor and support of the Editorial Board there would be no book: Dimensions of Liberal Education at Brockport.

We sought a collection of essays expressing individual points of view. The opinions expres-
sed by the individual authors are their own and do not necessarily reflect any official positions of the State University College at Brockport. By seeking a diversity of opinions, we tried to avoid the production of a training manual with a homogeneous impersonal style. When possible we hoped to raise controversy to stimulate class discussion and to avoid the presentation of too many pat answers. If we have given too much advice, it is because of the authors' intense concern that their students should avoid many of the pitfalls that ensnared us. We included pictures of the authors to remind readers that the essays were written by real people. We also encouraged authors to adopt a style suited to their own topics. The result is that the chapters do not all follow a common format. There is some overlap where several authors comment on important concepts from different viewpoints and in some cases there is outright disagreement on issues. You will, however, find much of this in college. It is, in fact, at the heart of the liberal arts.

Finally, without the assistance of many individuals this sourcebook would still be just another idea. The authors took time from already busy schedules to write, each responding graciously to our editorial suggestions. Norman Frisch, James Dusen, Dorris Bommer, and Denis O. Sullivan provided graphic and photographic support, Richard Incardona drew the cover and section illustrations, and it was Cynthia Zambrelli who sent all the words to the computer. Finally, Vivian Filppu cheerfully proofread the manuscript.

In the final analysis, we have only produced words on pages. You the readers contribute to the enterprise by allowing these words to come alive in your minds. We only hope the experience is as rewarding for you as it has been for us.

June, 1980

H. Larry Humm

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Section I
On Coming To College
For The First Time
"GREAT EXPECTATIONS"
YOURS AND OURS

In Charles Dickens' classic tale, Great Expectations, the youth Pip was informed in a veiled manner that his future held potential beyond that which he may have dared to dream. The adventures that subsequently befell him were continually colored by his knowledge that an unknown benefactor had plans for him, and by the expectations that this knowledge created. I have chosen this same title for my introductory comments because of the parallel I sense between your own situation and that of Pip. From my perspective, you are now embarking upon a similar adventure -- one whose outcome will be dramatically shaped by the expectations that you hold, and by your response to the expectations that others hold for you. Inasmuch as other contributors to this volume will explore with you in considerable detail many facets of a college education and of collegiate life today, I will focus on some broader considerations. Specifically, I would like to examine with you
the expectations you might reasonably hold for the College at Brockport, and the expectations that the College, in its turn, will hold for you.

What, you might reasonably ask, can I expect of the College? In its most essential terms, you can expect RESOURCES that are appropriate to the many and varied tasks at hand, and OPPORTUNITIES to utilize these resources to the fullest. As I view them, the resources that we have to offer you may be classified under three headings: the physical facilities, the academic and extracurricular programs, and the people. Let us look briefly at each.

First, the physical facilities. Every student has a right to expect the equipment, the technology, and the physical conditions that support learning, in a setting that is stimulating to the human spirit. Brockport will not disappoint you in this respect. The College has taken full advantage of its setting, creating a central campus where classrooms, residence halls and special facilities adjoin one another without sacrificing the sense of open spaces and fresh air that the human being seems to require. But the physical resources of the campus are far greater than what is revealed by the typical aerial photograph, however attractive that might be. Many of the most valuable facilities are not the most obvious — studios for art, dance, and music, well-equipped laboratories for the natural and physical sciences, study spaces and audio-visual aids, for example. Take a few hours to inventory these physical resources. Ask your teachers, your residence hall staff, your friends. Take the initiative and the time to explore us fully.

Secondly, the academic and extracurricular programs. As a college student, you have the right to expect an academic structure that will permit you to explore your interests and abilities, prepare you for a successful career, and provide you with the knowledge and understandings neces-
sary for living as a productive member of a democratic society. In addition, you should expect extracurricular programs that support the academic, facilitate your growth as a social being, and simply provide a chance to relax and enjoy yourself to no particular end. If you are like most entering freshmen, you will be just a little overwhelmed by the profusion of courses available to you, and the latitude you will have in choosing from among the hundreds of possible course offerings. But the variety and the freedom should not blind you to the basic structure underlying a college education. What do I mean by structure? I mean the way in which the hundreds of individual courses are shaped into majors and minors; the manner in which laboratory and studio experiences support the theory and facts of the classroom; the methods by which advanced courses are grounded in the more basic courses that form the underpinnings of every discipline. The basic structure of higher education is neither unchangeable nor capricious. On the one hand, it is based upon hundreds of years of educational practice. On the other, it is continually shaped by the creativity of the individual professor, responding to new knowledge within his field, and to the needs of his pupils. At Brockport, our newly developed General Education Program is an excellent example of the College's determination that its programs reflect the needs of its clientele. This Program, meshing as it does with the 30-odd academic major programs offered to undergraduates, should do much to meet your expectation that college prepare you not simply for a job, but for life in our complex world.

Finally, the people. At Brockport, it is the people who constitute the heart of the College. It is they who will help you capitalize on the physical resources, and it is they who breathe life into the academic programs. Your faculty at Brockport is a unique combination of university and college professors. University in the sense that many are nationally known for their contributions in their fields of interest; col-
lege in the sense that they are locally known for their contributions to the overall goals of higher education; providing a quality educational experience to our clients — you.

What is it that a faculty member at Brockport must possess, if s/he is to meet the expectations not only of his students, but his colleagues? First, and most obvious, knowledge -- a great deal of it. Second, and not quite so easily measured, the skill to impart that knowledge to others. Third, and most intangible of all, is commitment. Not simply commitment to a field of knowledge, but to people. More precise than that -- commitment to the education and the development of students like yourself. Commitment is a matter of caring, and caring very deeply. It is what sets the cool technician apart from the dedicated professional. The history of the world is, more than anything else, a record of people who cared. And surely there can be no doubt in your own mind that the people who will make a difference in your life will be those who can demonstrate to you that they have a commitment that is worthwhile. How is it that a faculty member demonstrates this kind of commitment? Enthusiasm is one good indicator. Have you ever noticed how excited some professors seem to be over their subject matter, and how difficult it is not to become infected yourself with that excitement? An even surer sign, of course, is how that person responds to you and your needs as a student. It is this kind of commitment -- this capacity to care -- that we hope you will find in your DLE mentor, your instructors, your classmates, and certainly in yourself. For it is this, more than anything else, which makes a campus community more than just an aggregation of books, computers, buildings, assignments, and people.

And what of the opportunities that are present? Probably the cardinal rule that you should allow to guide you is that your undergraduate college experience should be a time during which you sample and participate in a wide variety of
seminars, extracurricular activities, and the myriad other activities that a campus offers. This is an opportunity to try out different ways of looking at the human condition, at the differing expressions of human endeavor, at the rigors inherent in the disciplining of the mind. You will probably never again have the opportunity to make false starts, and to recover from them at so low a cost as now. It is likely that the majority of your classmates will change their major or their career goals at least once during their college careers, maybe twice or thrice. So why should you hold yourself to a different standard? Put another way, you should expect to make mistakes, and you should expect to learn from them.

Essential skills in study techniques, skills in "academic survival" if you will, are not limited in their use to this course or another. For the most part they are highly transferable to other courses and to other modes of learning, including the whole business of conducting one's life in a rapidly changing society. The rapidity with which change occurs in our lives has been the topic of countless lectures, essays, and books during the decade of the 1970's. Alvin Toffler's best-selling book, *Future Shock*, was a popularization of many convergent ideas on how people adapt, or fail to adapt, to change. If there is any lesson on adaptation that emerges from the many words that have passed on the matter, it is that the increased rate of change has come about as a consequence of the ability of our species to use its signal anatomical advance -- our brains -- and that the survival of the individual depends upon our remaining as flexible and disciplined in the use of these brains as we can. Thus, your first semesters at Brockport should provide you with the opportunity to enhance those skills in reading, listening and speaking, thinking, and computing that have brought you thus far. They should also serve as the basis for your continuing development over the next fifty to seventy years.
You should expect to find yourself uncomfortable and pushed to the limit of your abilities on more than a few occasions. You are investing four years of your life, and you and your parents are investing several thousands of dollars in this process of higher education. Making that investment worthwhile requires that you expect, and accept, the hurt that accompanies the exercise of faculties being called upon to perform as never before. Moreover, you should expect that some of the requirements that are made of you are simply a drag — at least for the moment. T.S. Eliot once observed that "No one can become really educated without having pursued some study in which he took no interest — for it is part of education to learn to interest ourselves in subjects for which we have no aptitude." It is this learning to interest ourselves in a variety of subjects that also promises the greatest probability for successful coping with the future. One cannot predict what the next ten years will bring, and one cannot assert with any certainty that what appears deadly dull today will not be vital and essential tomorrow.

Finally, you should expect to have a good time. The healthiest and most productive people seem to be those who understand the importance of balancing hard work with recreation and play. For the most part, the people of Brockport enjoy themselves, and do so in a variety of ways that bring pleasure to themselves and their friends, and even to observers and passers-by. The one requirement to make this expectation a reality is that each of us accepts this as an equally legitimate expectation of others, and that our own expression of this need does not encroach upon the reasonable rights that they themselves possess.

Now what do we at Brockport expect of you? Let us begin by identifying the commitments that you have already made in selecting Brockport. First, you have chosen to attend a public, liberal arts college. Secondly, you have chosen
to attend a college with a faculty which has high expectations of itself, and of its students.

As a public college, we are vitally aware of the investment that society has made in our physical plant, and in the salaries of each staff member. That investment is an expression of the value that our society places on the opportunity for learning, not only for our individual benefit, but for our collective well-being. We take that investment seriously. We expect you to do the same. To this end we will expect that you grasp every opportunity to enhance your skills and perspectives. We will expect that you will invest yourself in the very difficult undertaking of learning, and of learning in a disciplined manner that increases the efficiency of your effort. We know that you will find hard spots, painful spots, perhaps boring spots; we expect you to prevail. To expect you to do it entirely on your own would be folly. After carrying a problem as far as you are able, finding assistance will provide you with some of your most rewarding moments.

As a liberal arts college, we are committed to the values that have traditionally been ascribed to a liberal education in its many incarnations. There are several essays to follow that will attempt to shed more perspective on the nature of a liberal education than I can bring to bear alone and in this limited space. Suffice it to quote for you comments by two leaders of an earlier time, each renowned in his own right, and each extolling the virtues of another perspective. First the scientist:

The question of all questions for humanity, the problem which lies behind all others and is more interesting than any of them is that of the determination of man's place in Nature and his relation to the Cosmos. Whence our race came, what sorts of limits are set to our power over Nature and to Nature's power over us, to what goal we are striving, are the
problems which present themselves afresh with undiminished interest to every human being born to earth. (T.H. Huxley, 1863)¹

Then the poet:

Mere poets are as sottish as mere drunkards are, who live in a continual mist, without seeing or judging anything clearly. A man should be learned in several sciences and should have a reasonable philosophical and in some measure a mathematical head, to be a complete and excellent poet... (John Dryden, 1674)²

You will develop your own questions, and your own priorities for answering them. You will develop your own talents as a poet. Remember that the words "question" and "quest" are cognates, and that the latter implies an active, vigorous investment of time and effort. I trust that you will find that your DLE experience and your DLE mentor engage you in the beginnings of a four-year dialogue on the nature of a liberal education, and of the meaning of that education to the human condition, and that that dialogue will itself be the beginning of your own personal quest for the mysterious.

The most beautiful thing we can experience is the mysterious. It is the source of all true art and science. He to whom this emotion is a stranger, who can no longer wonder and stand rapt in awe, is as good as dead... (Albert Einstein, 1930)³

². John Dryden, 1674
I would like to discuss for you some major differences between high school and college. I will focus on three dimensions of your life in higher education: the time you will have, the decisions you will need to make, and the people you will live and work with. But first, I should explain where I "come from." I am older, and in that sense, I come from "way back." About forty of my years have been spent in education, many of them as a faculty member working directly with college students. I have also taken my turn as one of the non-teaching professional types whose job it is to contribute to the educational experience of college students through extra and cocurricular activities and programs.

The passage of time, and my experience with students over so many years has lead me to conclude that students do not need to learn everything the "hard way" by their own mistakes,
through trial and error. Students can get a vision of what's ahead of them from the people who have already been there. This essay is an attempt to contribute to that vision. I know I know what I am talking about because most of what I say I have heard from students. My only concern is that I speak clearly for them.

As you read this, you should be aware that your future is rapidly catching up with you. If you started college this past September, you are not far from the reality of that September when you will no longer be going to school. Unless you will be off to graduate school for post baccalaureate study for teaching, or the law, or medicine, or any one of the many professions for which a four-year college education is not enough, school will be behind you. In front of you will be time that will highlight living and feature making a living. Perhaps as you find the world changing rapidly around you, you will come back for more schooling to assist you in keeping up.

The time between now and that future of yours is short. With your future nearly here, think back over your years that have passed, and you must be struck with how quickly they have passed. However, if you think that you have experienced the rapid passage of time, wait until you are looking back at your college years!

Believe it or not, college time truly demonstrates that time flies, and then some! You'll need to take care that you are not too surprised when your undergraduate years are at an end. They're over before you know it, as the expression goes. The real danger is that in that speedy passage you may find yourself not quite sure what has happened and whether or not it has been worth it. Perhaps more to the point, you may ask whether or not it has been worth as much as it could have been. You may (as many graduates on their first job do) look back on your undergraduate time with a troublesome residual of regret. You don't have
all that much time before you are into your future. Shouldn't you decide to spend part of that time making a worthwhile investment in that future?

The time you spend in college will be filled with your choices, your decisions. Colleges tend to function by making things available to the students, not by making students do things. This is not only a surprise to many supposed-to-be students, it is also exhilaratingly deceptive. Here is freedom to choose the ease of the easy, to stick with the known and stay away from the new, to continue in comfort through the avoidance of challenge, to be concerned with the minimum rather than committed to a maximum effort and result.

Indeed you may choose to fail in college which can terminate your college education. Perhaps even more serious, you may choose to finish college, while achieving less than you could have, thereby confining yourself to the prison of mediocrity. Faculty who have worked with students over many years can tell you the consistent refrain of many of the graduates who wish they had done this, or wish they had done that. The anguish of wasted opportunity comes too late.

What you get out of college will be determined by the choices you make. While a good college offers so many resources to its students, any individual student may still get very little from the college. A college like Brockport positively glitters with things to attract and distract. As Shakespeare said, "all that glitters is not gold." You cannot do everything all the time. It is doubtful that you can do everything even some of the time.

Thus a major difference between high school and college is the scope, variety, and number of decisions you must make while in college. Furthermore, the impact of your decisions in college will be greater than ever before.
Another major difference in this connection is that there are all kinds of people at college who can or will influence your decision making, but few will tell you what to do or accept responsibility for the result of your decision.

This brings us to three considerations with respect to decision making:

First, not deciding is deciding. What does this mean? It means that if a decision is called for and you fail to respond, something will happen anyway. But you will have given up control over the outcome.

Second, every time you decide to do something you undoubtedly will have made several decisions not to do other things. For instance, when you decide to spend time studying, you are simultaneously deciding to reject other alternatives. You may pass up a conversation with a roommate, a party, a game of basketball, or a movie on TV.

Third, decisions do not amount to anything if they are just choices, expressions of want or desire, without implementation, without the follow-through to achievement of choice. It's one thing to choose to spend the evening studying; it's another to do it. It's one thing to want to go to college; it's another to graduate with a good education.

Here we should emphasize that of all the decisions you make while in college, some of the most important have to do with your academic program. These programmatic decisions should be based on what your interests are, the goals you have for your life, and upon your needs for discovering these interests and goals.

One of the purposes for attending college is to try to discover what your interests are, what you would like to do and be. To do this, students shouldn't limit themselves to what they think they know they want. Neither should they be disturbed because they have not determined
where they want to go and what they want to be. These observations go to the heart of General and Liberal Education. Liberal Arts is based on the assumption that you should seek new relevancies by sampling from a range of what may seem to be irrelevant academic courses and experience. Your choices may seem overwhelming if you try to consider them all by yourself. Even though you are free to choose, you should seek help from others who can clarify the alternatives for you. Some of the best assistance can come from your advisor, from course instructors, and from specially trained individuals in the Counseling Center or The Center for Student Services.

It is the faculty of the college which has the basic responsibility for designing and providing the academic program of the college. Let's examine more closely the role of the faculty on a college campus, and in particular what you may expect from them as your teachers. They are not just your classroom teachers. Before we can adequately describe the teaching role we need to understand the other functions of the faculty.

Generally, faculty have three areas of responsibility: scholarship, academic governance, as well as teaching.

Scholarship is the contribution to the growth of knowledge, information, and insight in particular fields through research and writing. Some faculty are more deeply involved in scholarly work than others. Those involved in research are also writing about their findings. This writing is subject to careful review by their peers, not only on the college campus, but by their professional peers around the world. This review serves a function similar to the faculty's review of students' term papers, forcing the scholar to maintain standards of excellence in the rigor of argument and to keep abreast of changing developments in their respective fields. You may have heard of "publish or perish" for college faculty members, suggesting
they cannot advance in their fields unless they publish. At Brockport it is difficult for faculty to gain professional advancement without publishing their research. Although this obligation may reduce faculty accessibility to the students, it is an integral ingredient in the quality of your college education.

A second basic responsibility of the college faculty, as already mentioned, is to participate in the design and monitoring of the college academic program. This responsibility extends beyond each faculty member's own courses to include the programs of departments and the entire college. Everything that a faculty member does in teaching or scholarship is subject to evaluation by his colleagues. Therefore, each faculty member is not only concerned with his own work, but is called upon to evaluate the work of others. Additional demands on the faculty's time and energy is devoted to concern with the planning, design, and implementation of every aspect of the academic program, from planning for the admission of new students to approving of requirements for graduation.

Now we come to the teaching role of the faculty. This is mentioned last not because it is least (by any means). Rather, the other roles of the faculty were covered first so that the teacher in college can be seen from a broader perspective.

Two considerations about college teaching seem particularly relevant in discussion of the difference between college and what you may have already experienced. First, in most courses you should not expect that your instructor is your primary source of information; the textbook, the library, and your assignments provide that background. In class, the instructor can use that basic information to provide insight into its deeper meaning and can challenge you to apply that information with disciplined creativity. Second, your contact with the instructor need not be limited to scheduled class time. It is
the wise student who takes advantage of faculty office hours to engage in discussion with the instructor, asking questions or pursuing particular interests in the subject matter.

It is important that you make the most of your relationship with your instructors because they have so much to offer. By the accepted measures of quality (number of doctoral degrees, research and publication, awards and honors for teaching and scholarship, and offices held in professional organizations), the faculty at Brockport is of unusually high quality for a primarily undergraduate school of its size.

Like any other quality faculty, it has some particularly interesting members. Let me offer some examples. Brockport has a historian who is an exchange scholar to mainland China, and an anthropologist who studies population patterns in Micronesia. Two poets have been invited to the White House to read their works, a political scientist serves as a consultant to the Brookings Institute in Washington, and an economist has served as a consultant to UNESCO. There is the founder and director of a nationally known
modern dance troupe and two athletic coaches who have worked with U.S. Olympic teams.

The faculty includes a member of the N.Y. State Legislature, a member of the N.Y. State Corrections Commission, and a member of the Medical Advisory Committee to the N.Y. State Director of Social Services. There are editors of several widely accepted professional journals on the faculty, and authors of textbooks in a variety of fields. There is the faculty member who is responsible for the National School Weather Project in which your high school might have participated. A geologist is a recognized authority on zeolites, while another campus scientist developed the SAMO technique used by quantum chemists all over the world.

A Brockport artist's design won a national competition for which he was awarded a commission to build gates for the Smithsonian Institute, and also street lights along Pennsylvania Avenue. Another faculty member designs, builds, and restores keyboard instruments that are used by concert artists around the world.

Although every faculty member is not a celebrity, there are many who I have omitted because space wouldn't allow, or I plainly don't know what all the faculty are doing. But don't be surprised if one of your psychology instructors is late for class because the animal brain surgery in his laboratory took longer than he anticipated. Or perhaps there may be a substitute instructor in a global studies class because your regular instructor has been called to Washington again for consultation regarding U.S. and Latin American relations.

What is the point of all this? First, Brockport has a faculty of which we can all be proud. They are competent professionals in their respective fields. Second, your college years allow you an opportunity of a lifetime to meet, to learn from, and to associate with a wide
variety of very talented instructors. Third, each of your instructors is a unique individual. Faculty will vary in terms of how much they expect of you and the kind of support they will provide. Some will expect you to do most of your assignments without supervision from them, while others may carefully spell out each step of your progress. You must learn to learn from each of them.

In addition to the faculty who you meet in the classroom and in their offices, there are other non-students on campus who contribute to the mission of the college. I see them divided into three groups: the librarians, the non-teaching professionals, and those who work to provide the various support services. Many of these types of people and the services they provide may not be unfamiliar to you from your high school experience. However, you will find at Brockport, as at any good college or university, there are more of them, and their professional quality may reflect more education and training and their service may be more specialized. Many of them, like the faculty, are scholars and are known beyond the Brockport campus for their contributions to their professions.

Let me begin with the library and the librarians. In one sense the library is the intellectual storehouse of the campus. The librarians are not only the keepers of the storehouse, they are "teachers" assisting students and faculty in their search for and use of the contents of the storehouse. Brockport has available for your use some 350,000 books and periodicals, and tens of thousands of items on microfilm. Anyone who knows about libraries will tell you that a collection of this size is unusual for a college like Brockport. The scope and variety of the library's collection has necessitated a specialization among our librarians. There are some who focus only upon reference materials, some on government documents, some on periodicals, and some on particular subject matter areas. Behind the scenes people work continually to keep our
collection up-to-date and growing. Others maintain a current and useful catalog to aid students and faculty. Brockport's library focuses upon the accessibility of the contents of the storehouse; and you can find what you need when you need it.

Other professionals on the campus include those in administrative roles, those directly involved with service to students, and those who provide support services.

The college administration is lead by the President who is basically responsible for what we all do. A Provost oversees the academic affairs of the college with the assistance of Deans, Department Chairpersons, and the Directors of the Library, the Academic Computing Center, and the Educational Communication Center. A Vice-President for Student Affairs is responsible for providing student services including: Admissions, Financial Aids, Personal and Career Counseling, Registration and Records, Job Placement, Health Services, Student Residential Life, the College Union, Recreation and Intramurals, and Intercollegiate Athletics. Other direct student services include Learning Skills and Academic Advisement.

The Vice-President for Administrative Services is concerned with the all-important college budget and is responsible for the maintenance and operation of the extensive physical facilities of the college.

Permit this note regarding college personnel from someone who has been a member of a campus community for many, many years. Some key people, regardless of organization charts, are the support-service people. I refer to those who prepare and serve our food, and those who maintain our buildings and grounds. Last, but not least, there are those in secretarial service. One does not have to be on a college campus very long to recognize how important these people are.
All of these college personnel, and what they do, brings us to the point of realizing that a college is not just a school, it is a community built around "going to school." Your high school was a large part of your life. While you are at college school is even more of your life, particularly if you are a resident student. You join us as a member of our community. As a member of this community you not only have opportunities, but responsibilities to participate fully. The manner in which you use your time and the quality of the decisions you make while a member of this community will determine the benefits you can receive from our many resources.

In the final analysis it is primarily you who make the difference in your college experience. This is the real difference between high school and college.
There is a popular picture of student life on the college campus that is almost as old as the American college itself. It is a happy montage of homecoming dances, all-night discussions, beer and pizza parties, marathon study sessions, football games with the rival college, and all the rest. It has provided some great material for Hollywood, and it's the way many adults like to remember their college years. It may even be the way you'll remember your college experience, twenty years from now. It's not, however, the best description of what student life is about on a day-to-day basis, and it's much too romanticized a picture to offer any useful insights into the real problems and pleasures involved in campus life. Therefore, we intend to leave the montage to you, while we discuss some specific areas of student life that are apt to have a daily impact upon you.
After we've taken a look at some of the larger of the many bits and pieces that constitute student life at Brockport, we'll direct our attention to some of the stresses associated with campus living. College has always been a rich source of psychological stress, but it is only recently that we have devoted the kind of attention to the problem that it deserves. We will divide our discussion among the common sources of stress, typical symptoms, and suitable means of coping with it. We will conclude with some glittering generalizations that may serve to cover some of the many loose ends of a very large subject. For now, let's take a look at residential living, clubs and organizations, part-time employment, and a few other key elements in student living.

Residence Hall Living

Approximately 4,000 Brockport students live in the thirteen traditional dormitories and the thousand-bed apartment complex known as Stage XVI. Freshmen are required to live on campus, so unless your home is within a 25-mile radius of the college you have no doubt already experienced dorm life at Brockport. It is a far cry from the dormitory life that your parents remember, as they have no doubt made clear to you -- usually with a touch of anxiety and disapproval, sometimes with just a tinge of envy. Up until the 1960's, there were female dormitories and male dormitories, and that was that. For the most part, members of the opposite sex never got (officially) higher than the ground floor lounges, and visiting hours of any kind were over at perhaps 10:00 PM weekdays and midnight on weekends. Alcohol would get you out of the dorm in a hurry, and maybe even out of school, and quiet hours were enforced with only a little less vigor.

Those were the days when colleges were expected to act in loco parentis -- in place of the parents -- and they're all but gone now. As a
result, you are far more in charge of your lives than any college generation before you. And how does all that freedom feel? If you answer that it feels great but that it also has its problems, you will be in a lot of good company. The absence of an external authority to make or direct your decisions and the sudden presence of countless personal choices can sometimes be what some philosophers have called an experience of "dreadful freedom." Many of the decisions you will be expected to make are going to require that you know yourself very well — your values, your interests, your capabilities, and your shortcomings. Furthermore, they'll come a lot easier if you have a good sense of where you stand with your close friends and your casual acquaintances. Let's take an easy example:

There you sit in your room, all set to put in three hours of heavy study for tomorrow's history examination. And there stand your suitemates, heading out for an evening at the Rat, and eager for your company. You certainly can't do both, and there is nobody behind you with a whip and a chair; the decision is all yours. But you'll be lucky if you get the choices narrowed to two. More likely you would have had to turn down the party on the adjoining floor, the great flick at the Union, and a broomball game. Even with the choices narrowed to two, it isn't always simple. You may know very well that you won't pass if you don't study. But if you're a little shaky about your relationship with your suitemates, you may decide you'd rather risk failing the exam than being left behind.

Many of the decisions you'll have to make, like the one above, simply have to do with the most productive use of your time and energy. More than a few, however, are going to have a heavier loading on the moral, ethical, or emotional side. How about if a friend of yours of the opposite sex wants to spend the weekend with you in your room? You no longer have the back-up of saying, "Gee, my parents wouldn't want you
staying overnight," or "My folks will be expecting me home by midnight." Suddenly the decision is very clearly (and often uncomfortably) all yours. Similarly with the use of alcohol. If your friends decide to get smashed some Friday night, you simply haven't got the external prop of saying that your father will brain you if you show up home drunk. (Do you remember when you were younger and your friends called you to ask you to do something that you didn't really want to do, but you really didn't want to admit it? So you clamped your hand tightly over the mouthpiece and whispered to your mother, "When I ask if I can go, say no!" Then you loudly asked her if you could go, she dutifully said you couldn't and you were off the hook? That's right at the crux of the matter. You get what seems like a dozen possibilities every day at college, and you can't find anyone to hang the responsibility on for making the decision, or even for relieving you of the responsibility for the one you'd very much like to make.)

Many of the problems involved in residence hall living are simply the result of mixing together several hundred people, each with his own personality and style of living. One of the simplest examples is the "night person" rooming with the "day person." One wants to go to sleep at 10:00 PM and hit the deck at 6:00 AM, while the other doesn't really get rolling until about midnight, and doesn't want to see the world before noon. Another example is the person who can't study without music, rooming with the person who can't study except in total silence. If you've lived in a dormitory for more than one night, you can spin out a dozen of your own examples, and of course they aren't limited to conflicting styles between roommates. At times it turns out to be an entire floor that causes problems for neighboring floors, or a small group of friends whose behavior irks or endangers the entire building. These problems touch upon a key issue in free societies — how to resolve the difficulties that arise when one
person's freely-exercised behavior infringes upon the freedom of another.

Working out the problems of group living is a complex business, and a challenge that faces virtually every residence hall occupant at one time or another. Happily, the challenges seem to be met more often than not -- roommates who start the year as total strangers almost always manage to resolve their differences and work out a comfortable living arrangement. (We know this for a fact: in a survey taken two years ago, 81% of all residents said they were happy with their roommates, and only 4.5% said they were very dissatisfied.)

The matter of working out satisfying living arrangements within the residence hall leads to the practical subject of how you can have a positive influence on dormitory life. There are three clear avenues, and you can mix and match them as you see fit. The first is simply you, exerting your personal persuasiveness over others in an informal manner. Are you strong enough to tell your roommate that you really don't want to sleep in the lounge just because he or she wants to bring in a partner for the weekend? Can you sip a coke or a single beer while the rest of the hall gets wasted? Can you convince your suite that the stereo ought to go to a whisper after midnight? Making your own standards and needs clear and being willing to stand up and negotiate on such matters is important when it comes to your personal survival and your satisfaction with the quality of residence hall life. The ability to be assertive without being obnoxious is a skill that will stand you well in dormitory life, and one which you will find useful throughout your life.

Another avenue for influencing life in the residence halls is the dorm council, composed of the student residents themselves. The dorm council is a democratic body that enables residents to plan activities, programs and living conditions beyond those that are established for
all residence halls. You can become a member of the dorm council, or you can relay your ideas and opinions through your council representative. Taking some leadership in how your dorm is run can be a lot more rewarding than merely getting quiet hours extended. You might want to give it a try.

The third obvious channel is the residence hall staff itself. On your floor you'll have a resident assistant, an upperclassman who has been selected and trained for the task of helping to run the hall. This is your first contact, and this person is supervised by the resident director, the professional-level live-in adult who is responsible for the whole show. These people are usually good for advice as well as for the settling of dormitory problems and the enforcement of rules and regulations. But you ought to remember that it is much more difficult to enforce dormitory regulations through the authorities than through peer pressure. That is, if the students on a given hall just won't tolerate noisy stereos in the middle of the night, there'll be a lot fewer offenses than if everyone merely waits for the resident assistant or the resident director to impose discipline.

We've been focusing on the problems of dormitory life, but by now you are aware that there are plenty of pleasures. Our surveys show that the dorm is where most students find the majority of their friends, do most of their studying, and carry out a good deal of their social life. And while they often complain about the dorms (along with the food, the health care, and some other standard institutional complaints), they generally like them. In fact, 70% think that freshmen should be required to live there. In this age of self-determination, that amounts to a pretty strong endorsement.

Before we leave the topic of residence hall living, we ought to spend a moment or two on alternatives to what may be perceived by some as
an intolerable situation. First of all, roommates or rooms can usually be exchanged with the blessing of the Office of Residential Life, and often there is the possibility of changing dormitories altogether. There is a caution to be offered, however: students who have endured a difficult room situation and worked out a suitable arrangement with roommates and suitmates are generally pleased and feel that they learned something by doing it. And there is always the possibility of landing in a hotter fire. But dorms do differ in style and atmosphere, and you owe it to yourself to investigate other possibilities if you are irretrievably miserable.

A second alternative, of course, is getting off campus altogether, and living in a private room or apartment. This isn't usually permitted until you have sophomore status, but you might want to check out the prospects. It does have some drawbacks, and you should talk it over with a number of people before you make the decision. It does tend to remove you from campus life to some extent, including the extracurricular programs and the support services that are available. Maybe it doesn't seem as if it should, but the evidence is clear that off-campus residents don't participate in campus life as fully as those who live on campus. And one other important fact -- students who live off campus are more likely to drop out of school altogether. And that's true year after year, at all types of colleges in all parts of the country. Probably it's just because you don't feel as much a part of the college life. For whatever reason, your risks rise when you move out of the dorms.

Clubs and Organizations

If one wished to describe campus life in terms of activities, one might well come up with a continuum, with the highly-structured formal curriculum at one end, and the very informal matters of daily living and socializing at the
other. Technically speaking, this is all there need be to a college education. You have to satisfactorily complete 120 hours of the right courses in some kind of sequence, and you can pretty much do what you want to do with the remaining average of 153 hours each week. (That is, if it isn't illegal, doesn't cause your friends and roommates to rise in revolt, and doesn't actually prevent you from getting those fifteen credits per semester.)

That may be the technical truth, but in reality every college has a tremendous range of activities that cater to the social, intellectual, educational, recreational, and career interests of the student body. They are non-required, more often than not they are operated and financed by the students themselves, and some of them appear and disappear according to contemporary student interests. Brockport has roughly 80 clubs and organizations, ranging from recreational clubs such as the Ski Club and the Scuba Club to hobby-oriented groups such as the Photography Club, to career-oriented groups such as the Pre-Law or the Pre-Med Clubs. Most are recognized and funded by the Brockport Student Government, and virtually all have a faculty member as advisor. And for many students, one or more of these clubs turn out to be among the most important events in their college careers.

Clubs and organizations on the college campus have some nice characteristics. Most obvious is that they provide students with an opportunity to pursue a special interest. A second is that they offer a superb means of meeting others, using the loose structure of the group and the common interests to set up a fairly comfortable chance to get to know one another. A third is that, because the structure is generally fairly loose, one gets to play just about as active a role as one wants. Some members are mostly passive, taking advantage of some of the activities without a great deal of commitment and responsibility. Others sink their teeth in, make major commitments, and frequently end up
playing leadership roles in the group. There is usually nothing that prevents you from starting at one end of the involvement role and moving to the other, or even back again. No grades, no bureaucratic regulations, no licenses.

Some of the clubs have a career orientation, like the Pre-Law or Pre-Med clubs, and may feature field trips, guest speakers, and similar activities intended to feed your interest in a field and extend your knowledge. In addition, the advisor for such groups is usually a faculty member who is especially interested and knowledgeable in that career field — a useful fringe benefit when it comes to advice, whether on courses, jobs, or how to apply for further education or work. Some clubs are extremely "do" oriented, like the radio club, giving members a superb opportunity to see what it's like to function in a genuine work atmosphere, limited though it may seem compared to a major metropolitan operation.

There's a certain amount of politics involved in nearly all clubs and organizations, but if you really want to get your feet wet in the politi-
cal world, you might want to consider student government. The Brockport Student Government (BSG) wields approximately a half-million dollars worth of clout each year, providing the funding for most clubs and organizations, and many of such student-oriented activities as concerts, athletic events, and films. Like the political world on the outside, a relatively small number of dedicated workers exercise control far beyond their individual votes, and those who want can usually manage to play a key role in student politics at Brockport. When you start talking in the half-million bracket, you're talking genuine power, and the chance to wield it to good effect is an exciting prospect.

Part-Time Employment

Plenty of college students need part-time work to supplement whatever other kind of financial support they're getting, whether it's the extra twenty bucks that makes a social life possible, or the fifty that helps pay room and board. If you qualify financially, you're pretty much guaranteed a job on campus under the Work Study Program. Even if you don't meet the standards for work study there are plenty of other possibilities for on-campus jobs. If you qualify for work-study, you are allotted a specific number of hours, and that's all you can have. In other jobs you're free to work as much as they want you, and as much as you want to work. This can be a great asset or a real liability, depending on how you handle it. Then there's always off-campus employment — ranging from pumping gas to slinging hamburgs to bartending to clerking in the stores. Like most colleges, Brockport has a student employment office, mostly geared to on-campus employment, but also reasonably knowledgeable about the community. What do you need to consider if you decide to go for a job?

First of all, you probably ought to find out if you're eligible for work study. This opens up some job possibilities that you won't have
access to otherwise. Eligibility starts with a visit to the Financial Aids Office, followed by a delay while some crafty computer in some far-off place decides whether you're eligible or not. After that, it's a matter of heading for student employment and/or off-campus. Besides the critical matter of whether or not you can get a job, however, there are a couple of other matters you should consider. One is the business of finding a job that has some meaning to you. Jobs turn out to have the most benefit when they not only pay you, but they give you experience in a field you have some interest in.

Going for a nursing career? Maybe you can work at the local hospital, or as a work study in the nursing department, or even in the college health service. Planning on a career in recreation and leisure? Maybe you can work in the recreation program -- the ice rink, the cages, or whatever. Picking a job in an area where you have some career interests does three things: (1) gives you experience in a segment of your field of interest (2) puts you in daily contact with one or more people also in that field (3) looks great on your resume when you head out for the first full-time job.

All three of these are important considerations. Some people discover, just from the experience of part-time work while in college, that they were barking up the wrong career tree. The opposite side of the coin is more frequent -- the part-time job stimulates interest. In fact, more than a few students have become interested in a field simply because they accidentally found an available job and liked it. The matter of contact with an adult already in the field is a definite benefit. You get to talk with, and observe, someone who does this kind of a thing for a living. That's your opportunity to pick a brain or two. It's true that some people are more excited about answering a lot of questions than others, but most people are pleased to find someone interested in their field, and glad to help them in any way possible. And keep in mind that students who hold part-time jobs tend to
persist with their college education more than those who don't.

There is a caution, however. Don't get carried away. The research clearly shows that people with part-time jobs (on-campus) tend to do better in their school work, and to stick with their education. But full-time jobs prove to be bad news, probably because they take too much time and commitment away from academic activities. Whatever the reason, students who take full-time jobs are much higher risks for dropping out of college altogether.

An important thing to remember about part-time employment is that you have a better chance to determine what you do than you think. If you really want to work in a specific area, you can often do it. You just have to make it clear that that's what you want. It doesn't always work, of course, but you'd be surprised at how often the eager and reasonably assertive student gets the job he wants. And many such students stick with their jobs for their entire four years, walking away with some good recommendations and experience along with their diploma.

Friends and Lovers

Writing about student life without discussing interpersonal relationships is quite a bit like discussing Brockport weather without mentioning clouds. On the other hand, this is a chapter, not a book. We intend to resolve this dilemma by limiting our discussion to some aspects of interpersonal relationships that are most apt to be relevant to you as a freshman. We'll begin with friends and acquaintances.

A college like Brockport is a fantastic setting for meeting people. How many times in your life can you expect to be in a situation where every day you have the potential for meeting any one of nine thousand people, most of them in your own age range, and four thousand of them living within a stone's throw of one another? Add to
this a fair amount of leisure time and a whole
raft of cultural, social and recreational oppor-
tunities, and the possibilities begin to seem
limitless.

One of the discoveries that you're no doubt
still in the midst of making is that when you
mix nine thousand human beings together in a
setting like a college campus, you come up with
an astounding range of values, moral standards,
talents, life styles, and ways of treating one
another. In fact, the feelings that most people
have when they come up against others who are
decidedly different from themselves or their
high school friends are a major part of the
"culture shock" that freshmen often experience.

Most people concur that exposure to these
differences is an important part of the total
experience that constitutes a liberal education.
At the same time, it is probably a good idea to
distinguish between exposing oneself to these
differences and accepting them, and between
accepting them and adapting them as your own.
(By the way, when we speak of exposure, we're
talking about observation and intellectual con-
sideration, and not necessarily experimental
participation. Chugalugging a pint of liquor
has a modest educational payoff, and could
conceivably shorten your life span by about
sixty years.)

Acceptance is a slightly different matter. In a
free society such as our own we place a high
value upon our right to think, say, and do as we
please. We clamp down on one another only when
our moral or ethical standards are excessively
stretched, or when the rights of others are
infringed upon. Colleges typically represent a
kind of sanctuary in society, where the toler-
ance is even greater than in society at large.
This means you're on especially good ground for
trying out some new ideas and behaviors, but it
definitely does not mean that anything goes.
Pulling fire alarms and breaking up lounge
furniture are easy examples of behavior that is
illegal and obnoxious, and that ought to be rejected. Most examples are not so clear-cut. There is something in all of us that enjoys the comfort of being with people just like ourselves, but we miss a lot that way. Our best advice is to not be too quick to reject the ideas and behavior of others, and when the situation seems a little muddy to you, don't be reluctant to talk it out with someone. But once you've reached what you think is a reasonable conclusion, don't be afraid to let others know where you stand. You stand a chance of making an enemy now and then that way, but at least one of them won't be yourself.

As for adaptation, we can pretty much promise you that you'll be taking on some new behavior and making adjustments in your values and moral and ethical standards, even if you weren't planning on it. When you can see it coming, however, we advise you to take it slowly, especially if the changes mark radical differences from what you arrived with. This kind of advice is particularly worth heeding when the changes are in areas that have a strong moral loading, such as alcohol and drug usage, sexual behavior, and the like.

Occasionally a student, through the luck of the draw, ends up in a suite or even a floor, that makes him feel like an oddball. Everyone else may seem to drink quite a bit and quite often, or take drugs, or engage in sexual activities on a fairly casual basis. If the "odd" man does not participate in such behavior and does not approve of it, he can often begin to believe that the behavior of his roommate and suitemates is the norm for the campus, and that he is truly different. Or he may perceive that the behavior of his suitemates is not necessarily the norm, but may not understand how to extricate himself from a situation that is continually unacceptable. Either situation can be upsetting and painful, and if it happens to you, you should be ready to talk it over with someone, whether the resident director, a trusted faculty member, or
a counselor. Oftentimes getting a clearer perspective on the situation is sufficient. Sometimes it's simply time to move.

Talking of roommates and suitemates brings us to another bit of advice. Sometimes it happens that roommates become the best of friends, and sometimes it is a friendship that carries clear through college and lasts a lifetime. That's a marvelous gift when it happens, but don't try too hard to make this one of your goals. Many experienced students say they would rather not room with their best friend because sharing a room puts too much strain on a friendship (surely you've heard the tales of vacations or camping trips that devastated perfectly good friendships?). These people say they find it much better to live in peaceful co-existence with a roommate and let it go at that. You can head in any direction you like in this matter, but please don't get trapped into thinking that in order to make the roommate situation "work" you have to love one another. Friendly acceptance and respect for the other person's rights and privacy go a long way with lots of experienced dorm tenants.

One last item while we're on the topic of friendship. For the majority of college students, finding a compatible group of friends never seems to be an issue. They have hardly dragged their luggage to their rooms before they have begun the business of establishing relations with their roommates, their suitemates, and the girl three dorms down the mall, and it never ends. For some, however, it just doesn't seem to happen that way, and more than one new student has completed an entire semester without what they consider to be a solid, satisfying friendship. If you're one of those people who just hasn't found the person or the group you're looking for, our first advice is to hang on and get inventive. There is a natural tendency for most students to operate within their own residence hall— even their own floor. You have to keep in mind that there are four thousand
students living on the campus, and several thousand more sprinkled around the edges. We can virtually guarantee you that the right people are out there somewhere, but you're going to have to smoke them out yourself. If you're basically gregarious, you can of course hit the social centers. If you aren't, then you should pay more attention to the clubs and organizations, and even take a careful look at the students in your classes. And there's always the intramural and recreation programs, which bring out students by the hundreds.

Another avenue that students often overlook is the community. The local churches welcome students, and more than a few find friends and support there. Volunteer organizations such as the fire company and the ambulance service provide many students with good experience, a sense of doing something worthwhile, and a packet of friends to boot.

Even the most gregarious people pull back now and then, and seem to need to spend a little time in private pursuits and introspection. And others who seem to be "loners" are sometimes entirely comfortable that way. There isn't any law that says that everyone has to have three close friends, forty-seven casual acquaintances, and membership in two social organizations. The real issue is, do you feel fairly happy, useful and productive? If you do, that's fine. If not, then give some thought to talking it over with someone -- resident director, faculty member, sensible suitemate, or professional counselor.

Lovers

Drawing distinctions among sexual attraction, romantic love, and the kind of love that binds a couple together for a lifetime, seems to be one of man's permanent preoccupations. Unfortunately for mankind, smashing the atom proved a simple trick by comparison, and confusion about love matters continues to contribute to separ-
ations, divorces, and a lot of human misery. Our own society's recent relaxation of restrictions concerning sexual behavior and the reporting and portrayal of sexual behavior has not clarified matters one bit. We aren't crazy enough to expect to tackle the entire subject of love in a couple of paragraphs, but we would like to touch upon an issue or two that frequently arises out of misunderstandings and confusion.

First of all, the relaxation of media censorship concerning sexual matters, accompanying as it has the loosening of moral standards regarding sexual behavior, has convinced many people that casual sexual relationships are the norm. That simply isn't the case. A significant number of people both male and female, insist that they do not intend to have a sexual relationship until marriage, and an even greater number claim that they will engage in sexual intercourse only in the context of a serious love relationship. If that is your own preference, whether because of
your moral standards or for any other reason, don't get bullied into believing you're all alone. And if you find yourself questioning the reasons for your own attitudes, don't hesitate to pick a trusted person and talk it over. We don't really have a preference for what you do, we just don't think you ought to become the victim of a media blitz, on-campus or off.

Society's increased permissiveness towards sexual behavior has resulted in another problem frequently found in the college-age population. This stems from the proliferation of magazine articles, books, and even academic sources that focus heavily on the nomenclature and the mechanics of the sexual act, with little or no attention to the emotions involved. For many people, the impression seems to have been created that sexual intercourse is simply another interesting form of recreation; a reasonable alternative, say, to backgammon, football, or skateboarding. College health centers and counseling centers see these people regularly. They arrive with the complaint that things aren't going well in the sexual sphere, and they are extremely concerned that something is physically wrong with them. In nearly every case, they are in fine physical condition. Questioning frequently reveals, however, that they are involved in a sexual relationship with someone with whom they have very little emotional relationship, or with whom the emotional relationship is in big trouble. Sometimes they are involved in a number of casual sexual encounters, none of which have any real significance in terms of human relationships. Such people are usually referred for counseling, where they are normally set back on track quite rapidly.

The secret lies in their discovery that human sexuality is not just a matter of mechanics, like perfecting your golf swing. The sexual act has carried great significance and stirred deep emotions for as long as mankind has been keeping histories, and society's recent relaxation of
standards doesn't seem to have changed that. It remains true that you're not apt to be at your best in the sexual area if you're feeling guilt or anxiety, or if the relationship is not a comfortable or a secure one. As college authorities, we don't involve ourselves much these days in the matter of whether or not students should engage in sexual activities. But we owe it to you to tell you that, if you're like most of the rest of us, you shouldn't expect your emotional life and your sexual life to get too far out of synch, without paying a price.

It would be nice to close out a topic like love on a slightly grander scale, but that isn't as easy as it sounds. Perhaps we can simply end with a word of advice to those of you who have already begun to think about a person with whom you could spend the rest of your lives. The word is, try hard to keep in mind that there are lots more people in the world that you can be infatuated with than you can stand to live your life with. After the fires of romantic love begin to cool a little (and they always do, no matter how impossible that seems when you're on one of those beginning peaks), what begins to count is how many interests you share, how similar your life styles are, how much you genuinely like each other, and how much mutual respect you have for one another. One of the nicest things we can wish you is a red hot, story-book romance with someone who just happens to have all those other characteristics as well.

**Stress in Student Life**

Stress seems to be part and parcel of modern, fast-paced societies. Medical experts believe it to be a significant factor in many of our health problems, and books, television and newspapers abound with stories on its effects and how to combat them. We smoke tobacco and pot, drink alcohol, and ingest a variety of legal and illegal drugs to minimize the daily pressures to survive and succeed, and recently we have begun to turn more and more to pop
psychology, Eastern religions, biofeedback and progressive relaxation for assistance.

And what are some of the ways in which stress may be expressed? Well, they vary to some extent with the age group. Among the college age group, physical symptoms are fairly common — chronic headache, nervous stomach, sleeping problems, or feelings of anxiety. The most common problem, however, appears to be depression. We include within depression a fairly wide range of symptoms, from a day or two of feeling "down" or "blue" to the more extreme forms that can include inability to concentrate, difficulties with sleeping, lowered self-concept, and a general feeling that there's no point to it all. Now anyone has a right to an occasional visit from any of the above; certainly it would be difficult to find any one who doesn't have a "down" day now and then. But you should pay attention to how often they occur, how long they last, and how disruptive they are to your life. It may be telling you something about how things are going for you that is worth examining.

And what can we offer you about stress and campus life? A good place to begin is the work of Drs. Thomas Holmes and Richard Rahe, two University of Washington psychiatrists who are among the many professionals currently investigating this phenomenon of life stresses. Holmes and Rahe have come up with a sort of score card for stress, with various life situations assigned numbers depending upon their impact on the average person. The death of a spouse, for instance, rates the highest possible score of 100 points, while a change in eating habits rates 15. If you add up the points for recent events in your own life, you can get some idea of the amount of stress you may be coping with. Now consider this: on the list are such items as changing residences (20 points), changing schools (30 points), changing living conditions (25), a change in social activities (18), a change in the number of family get-togethers
Because it was aimed at adults, they don't happen to have a score for moving away from family and friends, but with the death of a spouse at 100, divorce at 73, and marital separation at 65, you can get a pretty fair idea of its level of importance.

Do the above items sound familiar to you? They should -- the typical college freshman experiences them all at the same time. There is probably no other time in the average person's life when so many stressful changes take place simultaneously. These life events are stressful to people because of what they are or represent -- the stress that arises from the loss, or threat of loss, of a loved one; the challenge to survive and succeed; the struggle to meet one's expectations for oneself, or the expectations that others seem to hold for you. When you enter college you have the obvious challenge of succeeding academically, but you also face the challenges of making new friends, establishing independence, surviving financially, and many others.

If what we've said so far has got you packing your belongings so that you can clear out before the combined stresses fall upon you like a ton of bricks, then we've overdone it. What we had in mind was the creation of an awareness, so that some symptoms of stress in yourself or your friends will neither be ignored nor interpreted as the first signs of some ghastly disintegration.

It is important to make clear that stress in itself is not something bad, like tooth decay, to be prevented by proper hygiene. Most experts agree that humans function best under moderate levels of stress. What matters is how much, and for how long. When stress reaches a level that is no longer productive, what counts is how good your coping mechanisms are, and how adequate your social support system is. One of the most crucial events associated with entering college
is leaving a well-established system of social support that was years in the making, and that includes the family, the high school, and the community. This is the most difficult transition of all for many students. They never before realized the extent to which they depended upon their parents, their friends, and familiar adults in the community for a sense of who they were, what they were doing, and where they were going.

Make no mistake about it, freedom is great stuff. It is exhilarating and growth-producing, and the fight to attain it and expand it is one of the main themes of human history. It also takes considerable personal strength and self-understanding to use it well. This is why so many adults look for ways to hand some of their freedom over to someone else, and why dictators can still make a good living.

If there is any conclusion that we would like to leave you with on the topic of stress, it is definitely not that you should learn to identify sources of stress in yourself and find ways to avoid them. The person who has found a way to avoid all stress is quite apt to be dead, or is almost certainly to be useless and a bit of a bore. A better conclusion would be that stress is an inevitable factor in the human condition that one should seek to master, not avoid or destroy. That kind of mastery comes with self-understanding.

Benediction

College is a superb place for learning about oneself. For one thing, that's a major purpose of a liberal education, and you'll have a hard time experiencing courses in literature, art, philosophy, history and psychology without learning something about yourself and your relationship to the rest of the world. Secondly, the sudden burst of freedom that comes with college is a challenge, and nearly everyone is forced to increase his self-understanding in
order to meet that challenge well. Thirdly, the college environment is a highly tolerant one, and one of the best possible places to experiment. You can try and fail and pick yourself up and try again or try something else, with about as much acceptance and as little long-term cost as in any environment you'll ever find. To make the most of it, you'll need to take the time for self-examination. Successes and failures lose some of their value if they don't tell you anything about yourself. Finally, you'll be better off if you don't try to do all of your thinking-through on your own. Naturally you're going to keep your relationship with your parents, and you'll probably maintain some of your high school friendships permanently. But you should make a real effort to develop something comparable at college. Primarily your relationships will be with your peers, but you should find at least one faculty member with whom you sense some affinity, and make him or her a part of your education and support system as well.

It's worth noting that studies on who persists and who quits college show that those who have a close relationship with at least one adult member of the college are more apt to persist and to graduate. Nobody has investigated why that is so, but you can be fairly sure it is because they provided a sounding board, a model, a source of advice, and a sign that somebody cared. Some students assume that their professors are too busy to bother with them, and here and there you'll find one who creates that impression. Mostly, however, they're pleased to have a student seek them out. And of course, it isn't always the classroom instructor. For some it is a coach, a work supervisor, a resident director, or a counselor. If you limit yourself to the contacts you have in the classroom, you're wasting much of the human resources that your tuition and tax monies are paying for.

One final thought. The college as an institution has an obligation to provide the best
possible facilities, programs, and staff for its student body. But the single most important element in determining the quality of student life on any campus is the students themselves. Insist that the College meets its obligation to you. But insist on the same from your roommates, your fellow dorm residents, and especially yourself.
Section II
A Liberal Arts Education: What, Why, and How
1. Free From, Free To

Liberation is great! Whole countries, classes of people, and individuals pursue liberation. The news is filled with "liberation fronts" around the world. You can probably name at least three "liberation movements" in our country today.

To be liberated _from_ some oppression or restriction seems to be our most popular connotation of "liberate." We are well aware of our own country's early history: people wanting freedom _from_ an established church, freedom _from_ "taxation without representation," freedom _from_ enslavement, freedom — in the pioneer movement westward — from the confines of the populated East, to name a few. The throwing off of shackles, the busting out of various kinds of prisons into the sunshine of liberty is part of
the saga of our country and, in more subtle ways, it is part of the growth of every human being.

Growth! Forward movement! Expansion! Reaching your full potential! That is the positive side of freedom. The important preposition after the word freedom is to. Being free to do something or free to be the person you want to be is the crux of the matter. Freedom is not just getting rid of something that holds you back; it is taking on something or developing something that will help you move forward.

Look at our early American history again. The Puritans did not just leave an oppressive church behind; they started Harvard College primarily to provide an educated ministry for their spiritual growth. The Sons of Liberty did not just thumb their noses at King George III; a new government was established -- with taxation -- in order to thrive as a democratic society. The end of slavery was only the small beginning of enabling the Afro-American to discover his human dignity and to function as a full citizen.

II. The "Liberating" Education

How does freedom from and freedom to relate to "liberal education"? The Random House Dictionary of the English Language defines liberal education as "an education based primarily on the liberal arts and intended to provide maximum opportunity for self-expression or self-fulfillment." Liberal education is, in effect, a "liberating education" that equips us with freedom to find our fullest potential. Huston Smith provides a very poignant description of freedom.

"Freedom is the growing tip of life. To be free is to participate in creation's continuings, to partake of reality fresh and first-

hand in comparison with which other experience is drab and warmed-over. Thus acts performed in freedom carry a ring of authenticity which is deeply satisfying and filling. They flow spontaneously out of a fund of life within ourselves. In contrast, when we are unfree, we become inwardly dead. We live off other people. Our opinions and feelings do not spring from our own experiences; they come out of magazines or newspapers, from advertising, or in other ways that no more than reflect the prevailing mood. So we lose touch with concrete experience. Our self becomes a facade with no true, individual core...We have tasted the shadow instead of the substance of reality."²

III. The Absence of Constraint: A Condition of Freedom

By now we are able to see that the most popular connotation of freedom — that is, freedom from — is in fact a condition for the exercise of the positive sense of freedom the freedom to be. Freedom from certain constraints is, in other words, a prerequisite to becoming an autonomous human being.

We will consider the conditions of freedom, some of which apply particularly to late adolescence. For instance, the dependence on parental authority and support is one constraint that must gradually disappear. Huston Smith places this in the proper perspective.

"There are...parental ties which must be broken if adequate maturity is to be achieved; not ties of affection and mutual concern which should be lifelong, but ties of overdependence."³

³. Ibid., p. 62.
A second condition is freedom from blind conformity. In adolescence one trait that seems to go with trying out independence from parental authority is "peer conformity." Winning approval of and acceptance from peers becomes paramount in the adolescent's growing sense of identity. The young person is keenly aware of dress styles, behavior, language and attitudes that are expected by his peer group. This is not to say that no genuine relationship develops with peers or that adolescents are phoney. But the underlying, unconscious motive is one of acceptance by others before fully realizing and accepting one's own self. It is "blind" conformity because the adolescent is not aware that he is, in a sense, being controlled by others.

Adults display blind conformity, too. While peer conformity is acceptable in adolescents as a temporary stage in maturing, we find it tragic when an adult's identity is controlled by blind conformity to something outside himself: those who are preoccupied with prevailing dress fashion, those who find social acceptance or professional advancement only through ritual behavior, or those who live vicariously in the lives of celebrities.

It is important not to condemn conformity per se. A culture develops norms of behavior that provide order and security, as well as rituals and symbols to convey respect and enhance human relationships. Handshakes, verbal greetings, small talk and courtesies mean that we regard the other person as a fellow human being. Other customs of dress, leisure activity, social or business etiquette provide common basis for maintaining relationships. It would be difficult to get on with deeper or more creative communications if some of our daily interactions were not standardized.

The critical issue centering on "conformity" in tastes and cultural mores centers on the word "blind." Blind conformity means that one has no sense of self and what is uniquely good for him,
is not fully aware of all choices open to him, and fails to make his own genuine decision.

Up to this point we have seen that being free from parental dominance and blind conformity are two conditions of freedom. A third is that of being free from prejudice. Everyone agrees that prejudice is wrong and it is condemned for what it does to its objects; those who are objects of prejudice suffer rejection, restrictions of opportunities and sometimes direct hostility.

It is equally important to realize how the prejudiced person deprives himself of freedom. Prejudice literally means to "pre judge," to form a perception or opinion of another's race, religion, sex or social class that is not based on reality. It is judging and acting upon premature judgments before all the facts are in. Thus the prejudiced person becomes his own victim, depriving himself of two aspects of freedom: (1) the freedom to think through all the facts about who the other person really is; and (2) the freedom to relate to the other person as he really is.

A fourth condition is freedom from deception. One's view of the world, his attitudes, decisions and actions must be based on reality. In advertising, news reporting, the entertainment media, political campaigning, and other areas of human interaction, there are people who want you to see yourself, the world, and human events from their perspective. Those who would persuade or deceive you will present their version of the truth in order to sell you a product, or their newspaper, book, record, or their identity as a celebrity, or to assure their political future.

In the field of advertising the ad men must present a view of the "real" world where the right or accepted kind of people are either glamorous, macho, liberated, old-fashioned, or just "plain folks." If you buy into that kind of image, you will probably also buy their product.
In the entertainment world promoters must create celebrities that will draw box-office receipts, or high TV ratings, sell records, or endorse products. Usually the celebrities cannot be themselves, but must maintain an image that the public idolizes. It is also important for instant celebrities to create new trends and tastes with something catchy, some gimmick to capture the market.

In news reporting, it is hard to publish just the facts of an event or newsworthy person and still sell papers or get a TV audience. By selecting only "exciting" sequences, news events and personalities can be made to attract an intended audience. News can also be sensationalized -- playing up sex, gore, human suffering, impending doom, with well-chosen pictures on the front page.

The importance of recognizing these forms of deception is that, if you are gullible and accept what is offered you, you allow someone else to determine who you are and what the real world is. You are not free to be yourself, to choose what you want to buy, to develop your own taste in entertainment, and know the world and events as they really are.

IV. Liberal Arts and Conditions of Freedom

How do liberal arts have an impact on the particular conditions of freedom that have been described? The deeply personal and individual feelings involved in parental dependence may seem far removed from anything one might study at college. Not so, if you are alert to certain subjects and allow them to come through to you personally. Certain studies in the humanities can provide new perspective in understanding parent-child relationships; you may find you are not alone in the bittersweet experience of enjoying dependence while becoming your own person.

The trauma, beauty, and mystery of both sides of
the parent-child relationship are drawn out by authors, poets and playwrights. Two examples which some students may have read in high school are Marjorie Kinnan Rawlings' *The Yearling* and Arthur Miller's *Death of a Salesman*. In *The Yearling* a young boy tastes the responsibility of growing up, supported by an understanding father, and hindered by a fearful mother whose loss of another child prevents her from risking love again. In *Death of a Salesman* a father is disturbed about his grown sons having no character or purpose in life; he retreats into reminiscing about their activities in the earlier years when, as youngsters, they showed great promise.

Another perspective on family ties and growing up is provided through the social sciences. It can be quite an awakening to learn the complexities of family relationships and human development. The scientific evidence on how people develop emotions, attitudes, dependencies, groups and communities is another starting point for human understanding and appreciation.

The liberal arts can also break the constraints
of prejudice. In much the same way that insight and understanding can be brought to the parent-offspring relationship, the humanities, sciences and arts can free a person from the narrowness of mind that limits his relationships and his perspective on the world. Some freshmen may have already sampled some of the literature that portrays the destructiveness and the human suffering brought about by racial or religious prejudice. To name a few: Harper Lee's *To Kill a Mockingbird*, Alex Haley's *Roots*, and Shakespeare's *Merchant of Venice*. Also within the humanities, the studies of various religions can provide a deeper understanding of the nature and origin of various religious beliefs. The social sciences provide theory and fact on the social and psychological origins of religious, political, and economic ideologies. Theatre, dance, music, the graphic arts, the plastic arts convey the drama and levels of emotion that characterize particular religious experiences or ethnic backgrounds.

At this point we have taken a quick view of how the liberal arts can free us to relate to other people. When we are tied too closely to parents, the luxury of not making our own decisions is often mixed with the feeling of resentment and inadequacy. As you proceed through a liberal education, finding the various kinds of truth about the growth, feelings, fallibilities, and virtues of all human beings who are always growing, young and old, offspring and parents, you will be freer to be yourself. And, at the same time, you will view your parents with more objectivity, yet with more realism, understanding and compassion than was possible in your temporary stage of dependence on them. Also, prejudice creates a problem of distance in relationships instead of dependence. When prejudiced, you set yourself apart from other people by judging them in ignorance. A liberal education, as we said, provides various kinds of truth about human beings. An objective view of what is universally true in human beings, and the real differences among them,
sets you free to be yourself and to relate to others as they really are.

The remaining two constraints, blind conformity and deception, both relate to how we perceive and think about ourselves and the world around us, and how we let others influence those thoughts and perceptions. In the case of blind conformity a person has not thought much about himself, his value as a unique human being, or being his own self. As Huston Smith said earlier, in this constraint, "We live off other people. Our opinions and feelings do not spring from our own experiences."

It is difficult to focus on one aspect of liberal education that enables one to shun blind conformity. The qualities of being genuine, courageous, and assertive are found in the heroes of fiction, or in the biographies of great leaders, thinkers, or artists who may have been persecuted because of their non-conformity. Although freedom from blind conformity is not intended to make heroes or great men, such figures provide the model and inspiration for every man to be himself, resisting the temptations of conformity. The liberally educated person also has the discipline of thought, the human insight, and moral perspective that enable him to know himself and to be himself among others.

On the matter of deception and exploitation, the liberal arts provide thought patterns that equip a person to test false or distorted claims. The liberal arts provide experience at using the scientific method of determining fact and studies that examine the scientific, logical and "metaphysical" (beyond the physical world) ways of determining "truth" and knowing the various forms of human persuasion. Freedom from deception is provided in recognizing the various approaches to "truth" and "reality" and knowing how and why others use those approaches.
VI. Free to be What?

In a final look at our definition of liberal arts, what is the positive side of "...maximum opportunity for self-expression and self-fulfillment?" What do you have within yourself that has yet to reach its full potential? A way of imagining the possibilities for yourself is to picture yourself 10 years, 20 years, and 30 years from now. Who are you and what have you done with your life at those stages?

In our particular culture there is much said and written about "self-fulfillment" and "human liberation". This is not to say that mankind has progressed to the point of knowing the answers to self-fulfillment. We simply have more leisure time, material goods, relaxed moral standards, and do-it-yourself pop psychology to be more self-indulgent than in the past. It is not certain that preoccupation with the self has led many to a feeling of self-fulfillment.

The liberal arts get beyond our culture's isolation of the self and provide a deeper insight on human nature. They study mankind in different cultures and at different times, including the present, allowing many perspectives for understanding ourselves. Three such perspectives contrast in particular with popular concepts of self-fulfillment.

1. The Perspective of the Past. The popular notion is that only the present matters; the past is generally ignored and the future is rushed into the here and now. The liberal arts enable a person to know the array of human experiences and ideas of the past. The student discovers the reassuring company of many thoughtful people who have asked the same questions of life that are asked today.

2. The Perspective of Human Connectedness. Our culture emphasizes individual liberty and fulfillment of the self in isolation (doing "one's own thing"). The social sciences, the arts, and
humanities, all reveal the interdependence of human beings. Ideas, communication, the sense of personal identity and mutual good all come from people giving and receiving from one another. A liberal education reveals that the highest civilization or individual self-fulfillment come only in human community, starting from the smallest intimate group to a nation.

3. The Perspective of Human Limitations. Popular culture implies the progressive goodness of man. We are given the impression that the accumulation of knowledge, high technology, and material wealth has made us better human beings. But reading the newspapers and being observant to things around you will show no lessening of man's inhumanity to man. We abuse the natural environment as well. The liberal arts examine human nature and its limitations. Self-fulfillment can only be achieved through knowledge of one's own potential for evil as well as good. Myths from many cultures deal with this theme, including the movie "Star Wars" and its sequel "The Empire Strikes Back." The story symbolizes man's ability to control the irrational savage that exists within him and to follow instead the path of justice and love that religions probably were teaching even in the caves from which humanity emerged all those millennia ago."

Free to be what? You will have to fill in the particular answer. But your study of the liberal arts and use of the many helping services at the College will provide the maximum opportunity to know yourself and what you can be. The truth that you learn about yourself will make you free to choose your future and to commit yourself to it.

If you're reading this chapter, then there's a pretty good chance that you've decided to make a liberal education part of your preparation for a career. But where do you stand in the matter of making a specific career choice? Are you one of the few who have known since childhood exactly what you want to be? More likely you're among the many who have some general sense of direction, but who expect to zero in on a specific choice sometime during the college years. Then again, if you're here without the foggiest notion of the career for you, you'll find plenty of company among your classmates. Whatever group you find yourself in, you should keep in mind that choosing a career is one of the most important decisions you'll ever make, and one of the most personal.

You're a member of one of the most work-centered cultures in the history of the world, and although we joke a lot about how to avoid work,
we in fact define ourselves, our successes and our failures, in terms of work more than any other activity or characteristic. It's rare when two strangers can last more than fifteen minutes after meeting without one asking the other, "What do you do?" When we ask that question, we aren't asking if the other fellow likes to ski, or read Gothic novels, or coach Little League. We want to know his occupation. This isn't so surprising when you give it some thought. Everyone is more comfortable with another person when he knows something about him, and a person's occupation tells more than any other single item. From it we can hazard a guess about a person's education, income, and even his interests and values. Of course it isn't foolproof, and sometimes it leads to some real surprises, but it's good enough that sociologists often use occupation alone as a measure of socio-economic status.

Adults not only size up others through their occupations, they size themselves up this way as well. People define themselves to a large extent in terms of the value that others place upon them, and one of the primary ways in which this is done is through one's work. A psychologist once wrote that it is nice to be loved, but essential to be needed. He was referring to the fact that many people lose a sense of meaning in life if they are not doing something that needs to be done, and that others value having done. Examples abound. We're all aware of people who have gone into depression and physical decline soon after having to retire from regular work. Sociologists insist that much of our crime is committed by people who are denied status in society through the legitimate avenues of employment. And have you ever noticed how many wealthy people work as hard or harder than the rest of us, whether at business, at politics, or in some special field of interest? The rich who don't work are generally dismissed as unessential, and although their money may elicit some envy, as people they receive very little societal respect.
People thinking through their career plans do not always fully understand the kinds of needs that work fulfills. Society traditionally has done little to improve this understanding. College students are perhaps the least prepared to relate to the needs work satisfies. As high school students, it is generally assumed that having elected to attend college is career plan enough, and efforts are directed towards choosing a suitable college. Colleges, on the other hand, are only now beginning to consider career selection as a useful part of the college experience. As a consequence, most college graduates entering the job market for the first time have little more to rely on than experiences with part-time jobs held during high school and college. Such jobs are often, by their very nature, dead-ended and fragmentary, and make very poor reference points for future planning. The point of view of the present chapter is that career selection is far too complex and critical a matter to be left to a Saturday identified as "Career Day" during one's final semester of college. It is a process that has been under way for a good many of your years, and now deserves some conscious attention.

This chapter will examine career preparation from three aspects. First of all, it will give some attention to the present job market and the trends that appear to be developing. Secondly, it will consider the role of liberal education in preparing for a career. Finally, it will suggest how to go about the business of selecting a career while in college. Before we proceed, however, it may prove helpful to differentiate among some related terms that people often tend to confuse: positions, jobs, occupations, and careers.

Position. A position can be defined as a group of tasks performed by one person. There are as many positions in an organization as there are workers.
Job. A job is a group of similar positions within a given company or organization. Thus a firm may advertise that it has a secretarial position to be filled. It may be one of two-hundred secretarial positions in that firm, each with a specific salary attached to it, and each with a given set of responsibilities. If you wanted a job as secretary with that firm, you might apply for that particular position.

Occupation. An occupation is larger in scope. It refers to a group of similar jobs that cut across a number of organizations. Truck driving, teaching, welding, selling, are all examples of occupations.

Career. A career can be defined as the sequence of positions or jobs that one person engages in during his lifetime. Usually we restrict this to some general occupational grouping, so that in fact a person might be described as having more than one career. The 30-year military officer who retires in order to open a bookstore would generally be said to be starting a new career. Career changes are becoming more and more common, partly due to changes in technology, and partly due to changes in societal attitudes.

The Working World of the 1980's.

Anyone planning to enter a career during the 1980's would do well to give some thought to what the world of work might be like in our society. What will be the course of such current issues as inflation, dwindling energy supplies, rising educational costs, and third world political instability, and how might they affect your career path? Certainly there is general agreement on some trends: a steadily decreasing proportion of the population will be involved in the production of food and goods, and an increasing proportion in the human services, for example. It is fairly safe to assume a growing demand for workers in the computer industry and in the health delivery.
business as well. Unskilled and semi-skilled jobs that are easily automated, probably will be. It would not be difficult to fill several pages with what would appear to be perfectly reasonable predictions about the job markets of the next decade -- labor experts do it all the time. What we have discovered, however -- as engineers in the 1960's and teachers in the 1970's would be happy to tell you -- is that the job marketplace has become subject to entirely too many factors operating simultaneously to make such predictions a very safe basis for career planning.

That leads us to the factor that is virtually guaranteed to have a more persuasive effect upon the job world than any of those currently in the headlines -- technological growth. In a sense we are accustomed to living in a world of technology, and the constant growth of knowledge upon which it feeds. We expect as a matter of routine, continual improvements in goods and gadgetry, and daily additions to our knowledge of the universe and its laws. But there is much evidence that human beings are finding it increasingly difficult to cope with the most critical characteristic of technology -- its constantly accelerating pace.

Perhaps some examples of this growth would help to get things in perspective. Let's begin with information -- the basis for technological growth. In the year 1500 Europe produced approximately 1,000 new book titles each year. By 1950 -- 450 years later, with the rest of the world in on the act -- that number had jumped to 120,000 titles a year. But by 1965, only fifteen short years later, the total had shot up to 365,000 titles per year! In the field of scientific and technical literature alone, the world was producing 60,000,000 pages a year by the early 1970's. The growth in science can be portrayed even more vividly from the human side. Most of us can name some of the great scientists of the past -- Newton, Galileo, Lavoisier. But can you come to grips with the fact that 90% of
all the scientists who have ever lived are still living?

The second step in the process -- the translation of knowledge into technological growth -- has stepped up commensurately. At one time there was a humanly comfortable lag in the translation of knowledge into action. For example, a patent was issued for a typewriter as early as 1714, but it wasn't until nearly two centuries later that they became commercially popular. Similarly, more than one-hundred years elapsed between the time we learned the technique of canning food and the general usage of it. By the 20th century the time line began to shorten rapidly: home electrical appliances invented prior to 1920 took an average of 34 years before reaching peak commercial production, while those invented between 1939 and 1959 took only eight. Now, in the final quarter of the century, the gap between knowledge and action is more often measured in terms of months than years.

What are the effects of this explosion of knowledge and technology? If we limit ourselves only to major effects upon the world of work, we can list at least three: (1) a continual creation of new jobs and elimination of others; (2) a need for constant updating of skills and knowledge within jobs; and (3) a need for more worker mobility, both geographical and organizational. Let's look briefly at each of these.

Creation and Elimination of Jobs.

Modern technology is not eliminating the need for the human worker, as some people once feared, but it has shown a tendency to change the character of specific job categories. Broadly speaking, technology tends to take over more and more of those jobs involved in the production of goods, throwing more and more people into the service areas. The number of people required to feed the nation steadily drops, and more and more steps in the manufac-
turing process of cars, television sets and other items become fully automated. New technology and new knowledge create whole new job categories as well. How many of your parents were trained as computer programmers or environmental biologists or oceanographers?

**Updating Skills and Knowledge.**

The continual addition of new information and new technology rapidly changes the requirements of jobs, the knowledge and skills needed to perform them. An example comes from the Westinghouse Corporation, which estimated in the early 1970's that 50% of what a graduate engineer had learned in college would be outdated within a decade. You can be certain that this kind of obsolescence is more typical than not in the scientific and technical fields in general, and that some variant of this affects virtually all fields.

**Mobility.**

Americans have always been famous for their wanderlust: approximately one family in four changes residences each year. More and more often, that mobility extends to the job as well. Fifty years ago the average worker found his career in his job. Now it is estimated that the average 20-year-old will change jobs between six and seven times in his career. In the early 1970's it was reported that the 71,000,000 people in the U.S. labor force had held their current jobs an average of 4.2 years, compared with 4.6 years only three years earlier. In some fields the turnover is much higher than others, of course. A survey of 450 advertising executives in the mid-70's revealed that 70% had changed jobs within the past two years.

Whether workers change jobs within companies or change companies as well, a geographic move is often part of the bargain. Statistics from our capital may be extreme, but are probably indicative of the trends: in 1960 it was found that,
of the 885,000 listings in the Washington telephone book, more than half were different from the previous year!

Too many examples of this type can create a Chicken Little atmosphere of impending doom. The sky really isn't falling -- the weather is simply getting more changeable, and the changes are happening more rapidly. What conclusions can we draw from these trends? It seems clear enough that technology will find more and more ways to relieve human beings from unskilled and semi-skilled labor, and that job categories will be created and eliminated at an increasing rate of speed. It seems to follow that the worker of the future will need to be more geographically and organizationally mobile. And it appears that fewer and fewer workers can expect their entry-level skills to be sufficient for very long. What, then, is the most intelligent way to select a career and prepare for it?

The Liberal Arts in Career Preparation.

Until recently, a college diploma seemed to be an accepted part of the entrance fee to "the good life." During the decade of the 1970's, however, the unsettling effects of technological changes discussed above, together with inflation, rising costs of education, and unexpected pockets of unemployment in fields formerly safe for college graduates, have led to scores of magazine and newspaper articles questioning the traditional college education. Critics remind us of the overproduction of such groups as engineers during the late 1960's and teachers during the early 1970's, recite figures on the numbers of unemployed college graduates, and quote employers who complain that new college graduates are often underprepared. Some of these critics have suggested that a college education may no longer be appropriate to the job market -- more often there is a call for more "relevant" courses that will prepare students with specific job skills.
Doubts raised by such articles mesh nicely with America's traditional love-hate relationship with higher education. Somehow, we still love to hear stories about college graduates who don't know the first thing about how to do their first job. We get a certain belt out of the idea of the educated ignoramus, full of book-learning, but barely able to tie his shoes without consulting someone who has learned from experience. Where does a liberal arts education fit into the employment picture of the near future? If our technological machine is creating more and more jobs of indeterminate duration, each calling for a fairly specialized set of skills, should people waste four years and thousands of dollars getting general education? Ought colleges to be teaching more job skills?

A good place to begin, if one is seeking answers to such questions, is with some facts. The first fact is that the great majority of people who fail at their jobs do not fail because they cannot perform the work, but because of problems in relating to others. The second fact is that when employers complain that entry-level college graduates are not well prepared, they are rarely referring to specific job skills. They are usually referring to the communication skills of reading, writing and speaking, which have been in decline among college graduates for several years.

Most employers who hire college graduates will tell you that they are much less concerned with specific job skills than with the ability to communicate, the capacity to relate with others, and with such qualities as maturity, leadership, and motivation. That is why employers are so attentive to such extra-curricular activities as part-time jobs, membership and leadership in clubs and organizations, and participation in sports or the performing arts; they often provide a better means of differentiating between job applicants than do transcripts.
Another quality sought by employers is flexibility, by which they mean the ability to learn new skills and new information easily. Most employers seem to know what research has consistently shown — that more than half of what is learned in the classroom is lost in less than two years unless it is regularly used. What doesn't get lost, however, is something not so easily measured — the cognitive skills involved in learning how to learn.

As diverse as Spanish II, World History and Calculus may appear, there are some commonalities in the techniques for learning these subjects that can be applied to new learning situations throughout life. This is not a skill that is overtly taught, and people vary in the degree to which they master it. But taken all in all, those who survive four years of college have had considerably more exposure to those skills than high school graduates. A favorite story among experienced workers who do not have a college education has to do with the newly-hired college graduate who "doesn't know a thing" — the mechanical engineer who couldn't weld a simple seam, for example. These kinds of
stories lead us to wonder why hard-nosed businessmen continue to insist on college degrees for many positions when high school graduates could seemingly do as well. One of the reasons is the employer's long experience in selecting people who have the long-range capacity for learning new tasks more often and faster than others.

The fact that job skills and knowledge are not the chief factors in separating the winners from the losers in the working world seems to run counter to our intuition. It is an idea we don't give up easily. We have had a long-term love affair in this country with intelligence as measured by I.Q. tests and with success as demonstrated by academic grades. We seem to be continually perplexed by the fact that neither correlates all that highly with success in the big world. It isn't just that intelligence tests and academic grades don't reflect such critical characteristics as creativity, maturity, motivation, and the ability to relate to others -- they also fail to do a very good job of representing some aspects of intelligence that are extremely important.

Happily, some interesting research has been done along these lines in recent years on a variety of jobs that are typically filled by college graduates, including civil service, technical and administrative workers, industry executives, salesmen, police officers, and counselors. In this research the intent was to distinguish the outstanding performer from his or her less effective colleagues. The most consistent finding was that the amount of knowledge of a content area was unrelated to superior performance, just as it has been found to be unrelated to whether people keep or lose their jobs. The factors that seemed to make the difference could be classified as cognitive skills, interpersonal skills, and motivation.
Cognitive Skills.

One of the cognitive skills found to be important has already been alluded to, and is one that is reflected fairly well in intelligence tests and in academic grades -- the ability to learn new skills and new information. Another cognitive skill found to be important is the ability to make order out of all the "noise" that assails us in the way of data. If you can find thematic consistencies in what superficially appears to be a lot of chaotic information around you, and if you can organize and communicate these findings, you are valuable in many positions. This is an ability you can see in operation in meetings or discussions, where someone is able to take all the seemingly rambling and conflicting talk that has been going on, organize it, summarize it, and feed it back to the group in a way that is useful. People who have this skill are valuable in countless occupations -- teaching, marketing, news reporting, mediation, the military, and economics, among others.

Still another cognitive skill that has been found to differentiate the winners from the also-rans is the ability to understand the various sides of a controversial issue. People who are able to conceptualize the varying points of view, and who grasp the different perspectives people hold, are better at resolving conflicts. This is a skill that colleges teach through a variety of methods. One of the most common shocks experienced by college freshmen is finding so many different points of view on subjects they had previously assumed were cut and dried. When people say that travel is broadening, they refer to the beneficial aspects of learning that there are alternatives to the way one dresses, eats, raises children, worships, elects leaders, and perceives the world. A liberal education accomplishes similar ends through planned exposure to such differences.
Interpersonal Skills.

A second factor in the success equation could best be labeled interpersonal skills. One skill that has been found to be especially important has been called accurate empathy. By this is meant both the ability to diagnose a human concern (based upon what another person says and how he says it), and the ability to respond to it. For example, when a subordinate says, "If I get one more assignment this week I'm quitting!" the skilled supervisor doesn't automatically accept the message at face value. Rather, he uses the manner in which the threat is made, his knowledge of the particular employee, and some careful questioning to arrive at his conclusion. Those who can extract the real message from such a statement, while conveying to the employee that the listener perceives and respects his feelings, possess accurate empathy. Such people are much more effective in jobs where they work with others in a helping role, and are generally more effective in communicating with their fellow workers.

Still another interpersonal skill found to be related to success is the ability to promote feelings of competence in others through positive regard for them, through giving appropriate assistance, and through controlling the way in which one expresses disapproval or anger towards one's subordinates and colleagues. As students you are probably already aware of something that has been documented through research: that teachers who have positive expectations of their students tend to get better performances from them. The same holds true in virtually every human endeavor. As for the latter point, the least successful managers of people are those who attempt to motivate their subordinates by "chewing them out," and who tend to make negative statements and judgments impulsively. These kinds of people create a work atmosphere that is negative -- even punitive -- in character, and rarely rise very far in the career they have chosen.
Motivation.

In addition to the kinds of cognitive and interpersonal skills described above, the matter of personal motivation enters the picture. It is not enough that one may possess the skills believed to be necessary -- one has to be driven to use them. One interesting differentiation made by those who study motivation is between people who have a high need to do something new and original, and better than has ever been done before, and people who have a high need to get others to do things. People in the first category fit nicely into the fields of engineering, science, and some kinds of business. People in the second fit better into jobs as managers, salesmen, and military leaders. The topic of motivation is simply too complex to expand upon here, but is one you will do well to give thought to in your career planning.

Perhaps it is time to summarize what has been presented with regard to the question of a liberal arts degree as preparation for the job market of the future. We began by pointing out that people rarely lose jobs because they lack specific skills. Employers are aware of this, and are much less concerned with hiring people who are "well-trained" to perform specific jobs than with people who appear to have the capacity to learn whatever skill is needed, whenever it is necessary. In other words, a person who has "learned how to learn" is often seen as more valuable than a person who has learned some specific set of job skills. In addition, employers seek people who can demonstrate maturity, responsibility, motivation, and certain interpersonal skills that are consistently associated with job success, some of which we have described.

The kinds of qualities we have just described are not typically taught as skills in college or any place else, and certainly liberal arts graduates have not cornered the market on such traits. But college students have the benefit
of four additional years of structured learning experiences at a time when they are probably at their intellectual peak. As a group they know a good deal more about how to learn than the typical high school graduate. Similarly, many of the valued personal characteristics mentioned are enhanced through both the classroom experience and through the multiple opportunities for self-understanding and the understanding of others that the liberal arts experience presents. The conclusion is that liberal education is not only appropriate for the future — it is the best possible preparation.

There are some cautions to be offered at this point. If the material that has been presented to this point has led you to the conclusion that you might just as well slack off in your courses, settle for a respectable "C" and concentrate on improving your interpersonal skills in the evenings at the local bars, then we've got ourselves a communications problem. If you have your sights fixed on medical school, for example, there will simply be no substitute for very high grades in general, and exceptionally good grades in the pre-med curriculum. That will be true for a number of other post-baccalaureate programs, when the admissions committee won't care so much what your undergraduate major was, but will want evidence that you're a strong academic student in any case.

Secondly, many employers will use your undergraduate grades as evidence of other qualities, such as motivation, maturity, and the ability to plan. And another thing — you will probably want strong letters of reference from one or more of your college professors, who tend to care quite a bit whether or not you performed well in the classroom. So you shouldn't be misled into thinking that you can treat the matter of course performance lightly. After all, for four years it is your job, and future employers are going to take a good long look at whatever evidence exists to show how well you did it. With these cautions in mind, let's move
on to consider the matter of your own career selection.

Selecting a Career

The business of selecting a career is, at least conceptually, disarmingly simple. "Out There" are the jobs. They have differing educational and training requirements, pay varying salaries, are performed under certain conditions, and are done best by people with certain kinds of interests, values, and abilities. Luckily, the surge of interest in career development in the past few years has resulted in plenty of information being available about most jobs, and a willingness on the part of colleges to assist students in getting first-hand experience in many job situations while still in college. "In Here" there is you, with certain values, abilities, interests, and constraints.

The task of career selection is nothing more than making a good match between your characteristics and the characteristics of an occupation that would make a good career for you. There's a catch there somewhere, right? Right. The catch is knowing enough about yourself to select wisely. Knowing oneself is a lifetime occupation in itself, and most of us arrive at college with plenty of knowing left to do. But knowing oneself is the central point of education, and you'll never have richer opportunities than now to get on with the process.

What kinds of characteristics should we be most concerned about when we examine ourselves with an eye towards our careers? The most important ones seem to be abilities, interests, values, liabilities, and special constraints. Let us examine each.

Abilities.

Knowing what one's abilities are has a good healthy sound to it, and it is one of the first things that people ask about when they seek out
help in choosing a career. In actuality, the business of abilities has been considerably overplayed, and although we are able to measure some of the many human abilities, our measurements have not been found to be very much related to job success. The primary reason for this, as we have discussed earlier in this chapter, is that we have tended to devise measures of ability to perform certain skills and learn certain material, when in fact job success has been related to much more complex factors, such as motivation, interpersonal skills, and high level cognitive skills such as synthesis and critical thinking.

For most of the jobs that exist out there in the world, then, you need not concern yourself too much with whether or not you have some special ability that will bring you success. While most jobs have some bare minimum of necessary skills and knowledge, as we have pointed out, this is not generally the issue that determines either success or happiness. There are some very big exceptions to this generalization, however. If you aspire to be a physician you simply have to be superior in such subjects as chemistry and biology, and don't expect to get through engineering if your math is poor. Then there are the special abilities that we often call talents that you're going to have to have plenty of if you want to succeed in such special areas as music, dance, art, or athletics. But for the great majority of jobs, you should worry less about special abilities and a lot more about interests and values.

**Interests.**

When you start the business of looking for a career, nothing should be more important to you than finding something you like to do. Do you like to work with people or with things? Do you get great satisfaction out of helping others with their problems, or do you lose track of time when you get immersed in a mathematical problem? Do you simply have to work outdoors?
One of the problems people face when they consider various occupations is a lack of adequate information about what that occupation actually entails. Many people, when they think of lawyers, picture the classical television lawyer, making a dramatic and impassioned plea to a mesmerized jury, in order to defend an innocent murder victim. They are not aware that most lawyers are not trial lawyers, and that even for trial lawyers, there are days of tedious detail work and research for every hour in the courtroom. Others who aspire to be teachers are impressed with the apparent satisfactions of the brilliant lecture, but haven't considered the grading of essays, the taking of attendance, or lunchroom duty.

There are several excellent antidotes to this kind of ignorance. One is the library, which often has excellent descriptions of what various jobs actually entail. A second is hands-on experience, to be gained from working in the actual job setting, either summers or part-time during the school year, or occasionally for academic credit. We'll return to this idea later. A third help can come from occupational interest tests. These tests ask you scores of questions regarding your interests, and then compare your answers with those given by people who work in various occupations. The workers chosen have worked for several years at their jobs and are happy and successful. The basis for these tests is the finding that people who are satisfied and successful in various fields tend to have interest patterns that are similar. While such inventories are not intended to send you scurrying off to apply for whatever occupation gave you the highest score, they are often excellent additions to your understanding of yourself. If you always thought you might enjoy being a physician, but your interest scores come out very low in that field, it's time to stop and consider if you've been overlooking something.
Values.

Have you ever stopped to think about what you really value in life, and how these values are going to relate to your choice of a career? Every person operates daily on the basis of a set of values that they may never have stopped to examine. Values tend to become more fixed as we get older, but they are probably never fixed permanently. The college years are still a time of change in our values, as we expose ourselves to new ideas and new friends. Some of these values are highly related to choosing a career. For example, how important is money to you? If you absolutely have to earn a very high salary, then there are many jobs that should be eliminated right from the start. Of course, you need to get a good idea of what you mean by "a lot of money" and good information on what various occupations pay. Many college students, because they've never had to support themselves, have only a vague idea of what "a lot of money" is.

And how about status? Physicians and lawyers and college professors rank fairly high in status in our society, for example. Garbage collectors and gas station operators have much lower social status, although they may earn as much or more money, and may have just as much fun. Status needs vary greatly from person to person. If your own needs for job status are high, you simply have to crank that information into the formula.

Another value that needs examining is security. How important is job security to you? If it ranks high, you'll want to take a good look at jobs with plenty of it, such as civil service jobs, most teaching jobs, and career military officers. Advertising executives, on the other hand, have very little (as shown on page 62). Usually you can find trade-offs -- the possibilities for striking it rich and for iron-clad security don't always go hand in hand.
And how about freedom? Do you like to be able to come and go when you please? Sleep late one day and work late the next night? Take a week or two off when the fancy strikes you? Better check those job specifications.

These are some of the values that typically play an important role in career choices. You can probably add at least a half dozen more. If you conclude that you really don't know where you stand on some of them, that's all right too. Give yourself some time, but remember to drag them back out again somewhere along the way. If you pick a career that has built-in conflict with one or more of your basic values, you can expect a lot of trouble.

Liabilities and Constraints.

Sometimes we have specific liabilities that simply have to be taken under consideration. If you're really color blind, your chances for a successful career in interior decorating are going to be slim. And if you lost two fingers in a hunting accident, your typing and your playing of the clarinet are going to be somewhat impaired. Some liabilities are absolute, but many others are simply severe obstacles that can be overcome if the desire is strong enough. Weigh them carefully, and if you have to go for a career in a given field, and the liability isn't absolute, then go for it. People suffer more from exaggerated or imagined liabilities than from real ones.

Some constraints represent nothing more than one value taking precedence over another. For example, if you're a woman and you want lots of children, and you want them before you're thirty, then a career in medicine may pose some difficulties. Or if you have a strong need to live in close proximity with other members of your family, a career in the foreign service may prove a hardship. Remember that most values aren't iron-clad absolutes, and that most big choices in life represent some compromising
among one's values. Some of the conflicts turn out to be more apparent than real, and respond nicely to talking through with someone you trust and respect.

Do you know where you stand on the kinds of values and interests that are going to be important when you start the process of choosing a career? Do you know if you have any special liabilities or constraints? How realistic are you in your assessment of your talents and special strengths? College is a great time and place for getting a clearer picture of yourself than you've ever had before.

Squeezing the Most Out of College Years.

If you've arrived at college with no idea whatsoever about a career, that's perfectly all right. But if you think that the time to start worrying about a career is after you've gotten your hands on that diploma, you're making a colossal mistake. As we've said before, you're never going to have the kinds of opportunities again that will be available to you during your college experience, when it comes to the business of selecting your career. Those opportunities come in the shape of the formal curriculum, the extra-curricular clubs and teams and organizations, such useful humans as the faculty and staff and your peers, and part-time jobs.

First of all, there is the curriculum itself. One of the best possible ways to get some sense of the richness and variety of the world is to take a sampling out of a good liberal arts program, which is exactly what the general education requirements are for. An introductory course in art or music or dance, a survey of world history, or a beginning course in sociology will not only give you a better perspective on the world, but the chance to consider whether there's anything in that field for you in particular. A four-year liberal arts program will give you plenty of opportunity to do some informed dabbling. And don't be in a
hurry to lock yourself into a major if you really aren't ready. The sophomore year is plenty soon enough for most students and even that is too soon for some.

There are more than one-hundred special interest clubs and organizations on the campus. Hundreds of students have used them to explore and confirm interests that finally led to a career. That's just one of their functions, of course. They give you a chance to try yourself working with your peers, or even to try your leadership skills. And incidentally, they're often a lot of fun.

One of the least-tapped resources on most college campuses, when it comes to career selection, is the faculty itself. Not all of your professors are going to be knowledgeable about career options in their particular fields, of course -- some of them always wanted to become teachers and they did, and that is that. But every department has at least one faculty member who is highly aware of career possibilities, and you'd be astonished at the interesting jobs that some of your mild-mannered teachers have held. Don't be afraid to make an appointment with one of your classroom teachers to talk about your own interests and future plans. If you play your cards right you'll probably learn a few things you can use. After all, they've made their own choices; how they arrived at those choices and how they feel about them now will be worth knowing. Most faculty members are pleased -- even flattered -- when students seek them out for assistance that goes beyond explaining the classroom material.

One of the most valuable resources you're going to turn up is work itself -- the part-time and vacation jobs that abound on college campuses, in the surrounding community, and back home. You can read all you want about what jobs are like, and you can talk to all the people you can manage to find, but there's nothing quite like getting your own feet wet, no matter how humble
the particular job is. Whether you're third assistant stock clerk or the owner's daughter, you can't work in a real honest-to-god job situation without learning a whole lot about the various positions, employee satisfaction, and where it all fits into the world. So if you need money and you're going to have to work to get it, you might just as well take a job that will tell you some things you want to know. And if you're rich, don't despair. You can also work for academic credit or simply as a volunteer. (Or you can take the money and give it to charity, just to keep your employer happy).

Hands-on experience has at least four payoffs in addition to the money or academic credit you can earn. The first we've already mentioned -- the obvious one of learning something about what the job and the job setting are like. The second is the benefit of working with others who have chosen that work as an occupation, or even as a career. How do they like it? What do they think are the good and bad points? Are they happy? Would they do it again? And how do you like these people? The most popular career interest tests are based upon nothing more
complicated than matching a person's likes and dislikes with those of people already working in various careers. The reason such interest tests have proven so useful is that research has shown that you are much more apt to enjoy a career if your interests and values are reasonably similar to those of your colleagues. Nothing is apt to ruin your plans much faster than discovering that you don't have much in common with the people you spend every working day with. Of course you shouldn't jump to conclusions on the basis of one or two cases, but pay some attention to who seems to thrive on a given job.

There's a third pay-off that comes when you have the good luck or good judgment to find a job that meshes with some of the courses you are taking. The abstractions and the theories of the classroom can suddenly become very real when you have the chance to see how they are translated into everyday working reality. And conversely, what goes on in the job frequently begins to make a different kind of sense when you see it against the background of the theory on which it's based.

Finally, there's a big pay-off that doesn't show up until you enter the job market for good. As we mentioned earlier in this chapter, employers have very little to go on when they try to differentiate amongst prospective employees on the basis of just a college transcript. What they start looking for are some signs that will tell them about the candidate's maturity, sense of responsibility, ability to relate well with others, and other characteristics that can only be partially gleaned from grades. Were you a camp counselor summers? Did you become vice president of the student government? Did you work as a teaching assistant while getting your master's degree? Did you serve as a resident assistant in the dormitories for a year or two? While the most important thing about part-time work experience (excluding the loot) is what it teaches you about the occupation and yourself, a good second is going to be what it will tell
future employers. Keep this in mind, and when you have the luxury of a choice between jobs, don't let an extra buck or two keep you from squeezing some long-term value out of it.

Special Services on Campus.

You can get assistance of just about any kind at a college like Brockport; the trick is usually just a matter of deciding you need assistance and going after it. In the area of career development there are several programs and services that are especially worth looking into. First of all, you should become acquainted with the career library, which is located in The Center for Student Academic Services. The career library contains up-to-date material on just about any job you might have a question about, including what training is required, what the job market looks like, what the job actually entails, what the average salaries are, and so on. You can also find materials on how to write letters of application, how to prepare a resume, or how to finance graduate school. There isn't much you might want that you won't find, especially with the assistance of the professional librarian in charge.

The career library also houses SIGI, which is a remarkable computer-assisted program for helping you think through your career plans. (SIGI stands for System of Interactive Guidance and Information.) With SIGI you start out by considering what your values are as they relate to occupations, and you end by finding what jobs fit those values. SIGI can tell you all kinds of things about those jobs, including what education and training you need and where you can get it. Almost everyone finds SIGI useful, not to mention a lot of fun to talk to.

A program you really ought to know about is the Student Paraprofessional Training Program, a federally-funded program that was designed specifically to help Brockport students identify and confirm career choices. The point of this
program is to help students select academic courses and work experiences that will acquaint them with a possible career area. Each student is assigned a faculty mentor who acts as friend-advisor to the student, and who helps the student work out a plan that articulates courses and jobs in a way that promises the best pay-off to the student. Students who successfully complete the program (and it needn't interfere with your regular major or minor) receive a portfolio that describes their program, includes letters of recommendation from work supervisors and the mentor, and that ought to prove extremely valuable when the time comes to enter the job market.

Another program you ought to know about is the B.C.E.P. (Brockport Cooperative Educational Program), a program set up to give students academic credit for on-the-job experience in hundreds of possible different settings, including public schools, social agencies, law offices, hospitals, and places of business. You wonder what it's like to work in occupational therapy but you can't find a part-time job? You think you'd like to be a lawyer but you don't have any way to get inside the law world? Better talk to the people who run B.C.E.P. That's located in The Center as well. And you can combine your experiences in B.C.E.P. with the Student Paraprofessional Training Program, if you're wondering.

Brockport also has a placement service whose job it is to help you find the job you want, and to help employers find the employees they want. Sometime early in your college career you should plan to establish a placement file with the placement office — it will become the summary of your academic and work experiences that will eventually go to employers who want to know if you're what they're looking for. The placement office can also advise you on how to look your best in a job interview, how to write letters of application, and how to prepare a resume. And of course they do their best to keep people
informed of what jobs are out there, and to arrange for eager employers and equally eager job candidates to get together. A placement service will become critical to you as you get nearer to the time when you actually hit the job market. But don't wait until your senior year to use its services; check them out early so that you'll know what they have to offer you.

One final service you ought to know about has to do with student employment. Of the several hundred on-campus jobs available to students, the majority are funded through the College Work Study Program, for which you must be financially eligible. Most individual departments, however, also have a limited budget of their own for hiring students, and for these jobs you don't have to demonstrate any financial need — you merely need to impress them as the perfect employee. If there is a particular department for which you'd like to work, or a particular job you'd like to do, you should begin by applying at the department itself. If you're eligible for the work study program, or if you haven't any compelling need to work in a given area, then you should head for the College's excellent Student Employment Office, which is located in the Center for Student Academic Services. This outfit knows most of what there is to know about on-campus employment, and in addition is current on much of what is available in the community at large.

And in Conclusion....

By now the biases of the author of this chapter ought to be pretty obvious. But just in case you have missed them, it might be helpful to conclude with some pronouncements to take under consideration. Here they are:

Pronouncement #1: If there's anything one can conclude from looking into the future of the job market, it is that the more flexible you can stay, the more you can appear to be the kind of
person who can learn new tasks and adapt to new conditions easily, the better off you'll be.

Pronouncement #2: Don't start by gearing your career plans to what's available. You really can't be sure what will be hot on the job market in five or ten years. And I can't think of anything much worse than heading off each morning to a job you don't really like, simply because it was there.

Pronouncement #3: On the same wave length, do not give up what you really want to do, just because people tell you the jobs aren't out there. If you really want to do something, then eventually you'll probably get the job you want. If it is really important, then it is worth waiting and fighting for.

Pronouncement #4: Education costs a lot of money and time, and you probably can't afford to waste either of them. But if the career you really want doesn't materialize in your mind until the point where it will cost you an extra semester or even an extra year, don't hesitate to go for it. Plenty of students have stuck with a major they didn't really want, just because it would get them out the door on schedule. But to what? There aren't any gold medals being handed out for speed, and you'll have to live a long time with the choices you make.

Pronouncement #5: Keep a record of all the jobs you hold and all the clubs and organizations in which you participate, so that you can include them in the resume that you're going to have ready for those future employers. Don't be afraid to ask your employers for a letter of recommendation when you and they part company. Your future employers are going to care a lot about what your previous employers thought of you.
Pronouncement #6: Take all the previous pronouncements with a small grain of salt. After all, you've never even met the author of them. Talk to all the people you can, do your own investigations, and then make up some pronouncements of your own. They don't have to agree with mine or somebody else's, but they should be based on some intelligent research and thought.

Oh yes .... good luck.
Editor's Note:

WHAT IS A LIBERALLY EDUCATED PERSON?

When the time came to select an author to cover the topic "What is a Liberally Educated Person?" we were faced with an interesting dilemma. Clearly there was no single definition that could do justice to the concept. Rather than present a definition constrained by one point of view, we asked the question of three different individuals. The authors have demonstrated consistent commitment to liberal education while coming from diverse backgrounds: one is a historian, another is a physicist, and the third is a physical educator.

Since all three writers are describing their own view of the same concept, there should be some commonality. The reader ought to explicitly look for these unifying dimensions, even though the same idea may be dressed in different clothes in each article.

Equally important, the reader should identify those points upon which the authors vary. Is the difference merely a matter of adding more depth to the definitions? Or is it a matter of a difference in values? And finally, what characteristics do you find worthy of your aspirations?
Chapter 6

OWEN S. IRELAND
History

PERSPECTIVE 1:
GAINING KNOWLEDGE,
DISCIPLINE, AND VALUES

I believe liberally educated people are the freest of all human beings. They are most fully in command of themselves, most effective in interacting with their social and physical environment, and most truly capable of defining their own goals. The essential ingredients in this freedom are knowledge, discipline, and a well-developed set of personal values. A Liberal Arts education is the best way to acquire these ingredients. Let me elaborate a bit on each of these and then conclude with some ruminations on the value and significance of this discussion, particularly as it relates to the choice of an undergraduate program at Brockport.

The first characteristic of liberally educated people is the possession of knowledge and under-
standing. Liberally educated men or women are "intellectuals," unabashed participants in a special group whose members are at home in the realm of ideas. They are capable of operating on a plane somewhat elevated above the particular, the mundane, the immediate, and the practical. They enjoy thinking, they delight in the satisfaction of their raw and naked intellectual appetite to know, to see, and to comprehend. They are committed to the never ending search for meaning and insight in the complex psychological, social, and physical world about which man alone, of all creatures, has the need, ability and drive to order, categorize and render intelligible.

Now, what does all this mean? Well, let me be more specific. I believe that liberally educated people should be in possession of the most up-to-date and sophisticated concepts and generalizations about themselves, their social and physical environment, and the relationship among the three. They should be aware of the best we now know about the nature of the human condition, about how human societies go together and come apart, about the ways in which the physical world runs, and about how human choice is affected by and affects both the social and physical world. They should be aware of the complexity of human biology and human psychology, have a grasp of the variety and diversity of human social organization, possess an understanding of the basic elements in the physical-chemical-biological world from subatomic particles to the intergalactic space. Most importantly, they should see the relationship among these and how they interact over time to produce the patterns and structures and long-term changes which set the stage for and establish the limits within which human aspiration takes place.

This is the first step toward human freedom. Ignorance imprisons, frustrates, and precludes meaningful choice. To make the point half facetiously: a belief that angels bowling in heaven causes thunder and lightning severely hampers
one's ability to predict and avoid the consequences of this awesome natural phenomenon; the assumption that personal sin causes disease greatly stacks the odds against one in the fight to stay alive; the conclusion that past political leaders were paragons of virtue, disinterested patriotism, and wisdom substantially reduces one's prospects for effective interaction in the contemporary political context; and finally, if one can not accurately assess what is and what is not the real relationship between thunder and lightning, personal sin, vile diseases, and political leadership, then one's ability to predict, to understand, and to choose is relatively slight.

Knowledge, understanding, sophisticated concepts and generalizations about human beings, their social and physical environment, and the relationship among the three are prerequisites for freedom. The quest for this understanding must be a lifetime commitment, an incessant battle against ignorance, an endless struggle to see more deeply, to think more broadly, to order more effectively, to conceptualize more sharply, and to generalize with ever-increasing sophistication.

To put it another way, this pursuit of knowledge and understanding brings liberally educated people into a community of scholars who devote their time, energies and abilities to the disinterested pursuit of truth, beauty, and goodness. Within this intellectual community the distinction between student and teacher, between neophite and mature practitioner is not one of kind but one of degree. Both share the same objective and both employ the same means and each benefits from the other. Both are engaged in the discovery and communication of the fruits of the human mind, both are committed to the full and fruitful development of the human intellect. Some may do this full time. Others may devote varying portions of their daily time and energy to it. However, all are equally intellectual. All are equally members of this
special group, where the currency of the realm is an interest in ideas, where the gates are always open to those willing to apply themselves, where the price of admission and continued good standing is mental discipline, and where the satisfaction is intense and never ending: the delights of the mind, the satisfaction of the intellectual appetites.

If you will allow me to stretch an image a bit, I liken these intellectual delights to Shakespeare's description of Cleopatra and the all-consuming but never consummated passion she inspired:

"Age cannot wither her, nor custom stale
Her infinite variety; other women cloy
The appetites they feed, but she makes hungry
Where most she satisfies..."

(Anthony & Cleopatra, II, ii, 243)

II

The second characteristic of liberally educated people is well-developed intellectual skills: the ability to think systematically and logically, and the ability to communicate the results of this thought effectively and efficiently. The liberally educated man or woman must have well-honed and sharply disciplined intellectual capacities. The human mind has almost unlimited potential. However, left undisciplined, it flits from tangent to tangent, developing sloppy and fuzzy concepts, haphazardly linking these together in simplistic stereotypical generalizations which in turn float freely and unhinged in a kaleidoscopic frame of reference most conspicuous for its internal inconsistencies. On the other hand, the human mind honed to a fine edge, focused sharply, and disciplined by repeated interaction with others is a powerful tool of truly awesome proportions. Its power and its potential depend upon the full maturation of the basic skills necessary for successful inquiry, reflection, discourse, and choice. These include the ability to read systematically and
effectively in at least three languages: the native tongue, a foreign language, and the language of mathematical and statistical communication. Equally important is the ability to analyze rigorously. This includes breaking problems down into their constituent parts, locating and gathering the relevant information, arranging it in systematic categories, indentifying patterns, generating and testing viable hypotheses, and evaluating both the process and the substance of the results. Finally, the well-developed mind communicates both orally and in writing with precision, style, ease and grace.

Closely related to these intellectual skills is a set of intellectual qualities or characteristics which may best be defined as attitudes of mind. They are not as easily defined as the intellectual skills but they serve to circumscribe and focus the intellectual skills and nurture the life of the mind. Thus, the liberally educated person is open-minded rather than rigid; has a willingness to live and act in ambiguous situations; has the capacity to transcend the temporal, geographic, and cultural provincialism which clings at all of us; has a tough-minded curiosity; exhibits a commitment to exact evidence and objective judgments; and is comfortable in a working middle ground between rigid dogmatism on one hand and flaccid relativism on the other.

Thirdly, liberally educated people should be characterized by a heightened moral sensitivity, and an explicit personal value system. Regardless of the way in which they earn a living, liberally educated people should be noted for their awareness of the moral implications of human choice and their sense of individual responsibility to themselves, to their fellow human beings, and to the first causes and the ultimate ends of human existence. Liberally educated people cannot be amoral professionals.
physicians, lawyers, or teachers benefiting from the exercise of professional competencies with little concern for the consequences. Liberally educated people cannot be indifferent business executives who, while faithful to the marriage vows and pillars of the church, contribute to the destruction of the environment, the dehumanization of workers, and the augmentation of human misery by their economic division. Liberally educated laborers, white collar workers or government employees cannot be indifferent to the needs of the institution which employs them nor of the interests of its clients. Liberally educated people are not subject to the latest fads, the newest gimmicks, the most persuasive hucksters. Liberally educated people have a well-developed and mature set of personal values which guide and direct day-to-day decision making. It is not the whim of the moment, the glitter of the package, the blandishments of the media, the rhetoric of the would-be-leader by which liberally educated people chart the course of life, but rather their own deeply held and rationally developed values.
It is this set of values which determines the ends to which their knowledge, their understanding, and their insight will be put. A well-developed mind unguided and unleashed and set free from the constraints of firm moral principles is the greatest force for evil in human society. A fully mature and well disciplined mind, guided by rational and deeply felt moral precepts is the greatest potential source of human well-being. Such a set of values is thus an essential element for the liberally educated man or woman; an educational institution which neglects this risks the production of moral monsters.

In summary, a liberally educated person should be characterized by a sophisticated understanding of how things are and how they came to be, by a deep moral sense of how things ought to be, and by the mental capacity and the moral inclination to play a significant role in the awesome task of reconciling what is and what ought to be.

IV

Of what use are such people? Are they to be rich? Powerful? Successful? Happy? Maybe. And maybe not. It all depends on what they choose to do and what they choose to become. Well-educated young men and women, products of a liberal arts education, should have the understanding and the intellectual capacity to become practically whatever they wish: successful business executives, political leaders, communication experts, lawyers, doctors, priests, teachers, government leaders, self-employed consultants, small businessmen, writers, disc jockeys, rock stars, farmers, skilled craftsmen, world travelers, hermits, nomads; whatever their value system tells them they should do; whatever, on mature reflection, they wish to become. Once out in the world, liberally educated people have before them the plenitude of human potential, the full range of human choice, circumscribed only by the parameters of their
moral perceptions and the limitations of their creative imaginations. In a very real sense, these liberally educated men and women are the freest of all creatures, best able to chart their own course, choose their own goals, select the appropriate means and succeed in reaching their self-defined destination.

Ah, but you still ask, "Will it make me wealthy?" The answer is still: "Maybe, if that's what you still want." But I'm hoping your liberal education will help you to aspire to more noble ends. I firmly believe that any bright and industrious person can make a living, can make money. Even some not so bright and industrious people have made substantial quantities of money. There is not much trick to this and no one needs a college education to accumulate cash.

The important question is not whether you can make money, not whether you can find a job, but whether you can find a means of making a living which is worth doing for its own sake. Put another way, can you find a vocation which is also an avocation, a "job" that is intrinsically interesting and valuable, and is consistent with your personal values and moral precepts? If I might be permitted to exaggerate a bit, any damned fool can make money, but only the fortunate can do it in a satisfying and moral way.

It is in this area that I believe a liberal arts education becomes decisive and pays for itself a hundredfold. By the end of four years of rigorous intellectual training at a Liberal Arts College, you probably will have no immediately marketable skills. You shouldn't expect to. Your education was not designed to provide you with that. If marketable skills were your objective you should have gone to a trade school. Graduating from a liberal arts college should provide you something more valuable: a well-developed set of moral principles, substantial insight into self and society and the physical environment, and a highly developed set of
The first of these, the moral principles, set the parameters within which to decide what to do with the rest of your life; the second, the understanding, provides you with an awareness of the possibilities, the limits, the potential, and the necessary means; the third, intellectual skills, puts you in a strong position to do what is necessary to enhance your chances of achieving the goals you set.

If, at that point, you decide that making money is the most important thing to you, then you should know enough about the world to identify areas most likely to produce great wealth. You should have the intellectual skills necessary to study the terrain and devise a successful strategy for reaching that goal. If on the other hand, you choose some less mercenary goal, the same understanding and the same intellectual skills will enhance your competitive position and increase your chance of success. A solid liberal arts education provides a firm base and the necessary skills for building whatever kind of life you choose. It maximizes your freedom, your one truly and uniquely human possession.

How does one get to be a liberally educated person? In my view, the best and surest way is to attend a liberal arts college, avoid pressures to premature specialization, experiment and explore widely in the social sciences, the humanities and the physical sciences, and then pick a major which demands rigorous analytical thinking, requires extensive reading and writing, and provides a broad-based comparative and integrated view of the world. Most importantly, pick a major you like. No traditional academic area has any particular economic or vocational advantage over another and you will do best in the one you like the most. Each is an equally valid route to the liberal arts education and the liberally educated person.
A second means to the same end is open to those with vocationally oriented majors, especially those in the social professions. For these, the General Education program provides the base. Upon this, must be built a sequence of courses outside the major field which, while complementing and buttressing the major, also insure the breadth of vision and the historical perspective which are the hallmark of the liberally educated person. Careful planning and close advisement are essential to insure that in preparing for a "job" the objectives of a liberal arts education are not neglected.

But, whatever the route, the key is hard work. There are no free lunches. You never get more than you pay for and, especially in higher education, the medium of exchange is hard work.
There are probably as many definitions of liberal education as there are people who are liberally educated, and it would be naive to attempt a universal characterization of the idea here. One point which must be made at the outset, however, is that the mere completion of a prescribed curriculum will not guarantee that one has truly become educated. General education requirements such as those adopted by this college are but an imperfect attempt to guide a student's choices as he or she attempts to become well educated. This paper will not deal with the process by which one may become liberally educated, but rather will attempt to identify three qualities of mind which seem to be shared by those who have managed to become liberally educated.
CURIOSITY

We are born with a lively sense of curiosity, and with luck we can retain some of it when we reach maturity. All too often, an elementary or secondary school dedicates itself to a "production line" philosophy which tends to suppress a child's natural curiosity and to direct his or her interests along standard, rigidly-defined lines. A strong personality is required to resist the influence of such a system, and the penalty for such resistance may be severe: poor grades, disciplinary sanctions, and perhaps even expulsion from school. Albert Einstein, certainly one of the most creative thinkers of this century, suffered as a young child under such a rigid system in Prussia, and as a result earned a reputation as a problem student. The frequently-cited story about Einstein failing mathematics as a student reflects his rebellion against the authoritarian educational system in which he was enrolled. A child is indeed fortunate who encounters a gifted and dedicated teacher or an enlightened curriculum during these early years. The same statement may be made with respect to many college students as well.

Natural unfettered curiosity tends to be ignored in the design of many college curricula. This is not meant to imply negligence on the part of the faculty, for the twentieth century is, if nothing else, an age of specialization, and specialization demands that the individual focus his attention upon a relatively limited region of interest. The discipline defines which problems are "interesting" and discourages the student from exploring areas which do not appear to bear directly upon his training. Engineering programs are especially prone to engage in this sort of intellectual channeling with highly structured curricula and career-oriented advise-ment procedures.

This indictment is not restricted to the sciences; all disciplines suffer to some degree
from the same provincial attitude. British physicist and novelist C.P. Snow, in his essay The Two Cultures, described the result of this over-specialization: "Literary intellectuals at one pole — at the other scientists, and as the most representative, the physical scientists. Between the two a gulf of mutual incomprehension — sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding." The Shakespeare scholar has little use for mathematical equations, and shakes his head in bewilderment at those who find beauty in such abstract entities. Likewise, the mathematician views with disdain the pursuit of syntactic analysis of King Lear, and scoffs at the intellectual benefits to be derived from such a "trivial" pursuit. Each suffers from a form of tunnel vision, gradually imposed upon him by years of training and experience. Each is missing a sense of curiosity about a large portion of his world.

A liberally educated person, therefore, will generally display a well-developed sense of curiosity, unlimited by artificial boundaries. It is not easy to assure that this will result from one's educational planning, yet it rarely happens by chance. In fact, it requires that one take courses which stretch the imagination beyond the limits imposed by previous experience and interests. Only by being confronted with interesting problems in areas outside one's own field can one really develop curiosity in this broad sense. An excellent example of this type of curiosity in action can be found in Thomas Birch's History of the Royal Society of London, in which the early meetings of that group are


2. Birch's history is available on microfilm and makes fascinating reading. It covers roughly thirty years from the founding of the Royal Society in 1660 until after the printing of Isaac Newton's Principia under the authority of the society in 1687.
described in some detail. Although only thirty percent of the original membership of the society had received formal training in the science of the day, a wide range of phenomena were explored and many important discoveries were made by the group within a short period of time. 3

CREATIVITY

A second, but related feature shared by liberally educated people is the ability to be creative. Curiosity by itself may amuse and delight, but it rarely produces benefits of lasting importance for society or for the individual. Whether one wishes to be creative in the fine arts, or in the sciences, one must have tools and skills, as well as material with which to work. The painter has his oils, his canvas, his manual dexterity, and his conception of form and structure; the scientist has his

3. One finds in juxtaposition experiments on the function of respiration, the early discoveries using the microscope, attempts to measure the variation of the force of gravity with height above the ground, discussions on the meaning and interpretation of fossils, and much more.
data, his mathematical theorems, and his knowledge of theories relevant to his problem. The creation of a true masterpiece, in painting or in science, requires a depth of perception, a breadth of understanding and a level of skill which cannot be acquired without long and dedicated training. Both the Mona Lisa and the Special Theory of Relativity demanded more of their creators than mere natural talent.

It is characteristic of the young to believe that one can produce works of merit through talent and imagination alone. In fact, only rarely does an individual have sufficient natural talent to create a masterpiece without the appropriate training and experience. The apparently free style of Picasso was acquired only after years of study and practice, often including the detailed copying of the work of the great masters. There is no easy road to creativity.

A liberal education should provide, therefore, a start toward the type of training and discipline necessary for the full development of one's natural talents. Indeed, the "liberal arts" originally referred to those disciplines which were believed to be sufficiently well understood to be capable of practical application. The Oxford English Dictionary includes the following under "arts":

"Certain branches of learning which are of the nature of intellectual instruments or apparatus for more advanced studies, or for the work of life; their main principles having been already investigated and established, they are in the position of subjects requiring only to be acquired and practiced. Applied in the Middle Ages to the 'trivium and quadrivium, a course of seven sciences, introduced in the sixth century...the trivium contained grammar, logic, and rhetoric; the quadrivium arithmetic, geometry, music and astronomy (Hallam); called also the free or liberal arts."  

In part, the academic major has replaced the liberal arts in the modern curriculum, providing the discipline and detailed study necessary for the practical application of one's talents for the "work of life." One cannot claim to be liberally educated if he has never studied in depth some organized body of knowledge.

Of special interest is the important position of communication among the seven original liberal arts. Clear thinking and clear communication go hand in hand. To master a subject, one must be able to communicate about that subject. Reading, listening and reporting, both orally and on paper, are essential skills for the study of any discipline, from the fine arts to the sciences. Edwin Newman, NBC newsman and critic of English usage, has written two humorous but powerful critiques of the linguistic skills of modern Americans: *Strictly Speaking* and *A Civil Tongue*. In the introduction to *Strictly Speaking*, he states:

Something drastic is needed, for while language -- the poor state of language in the United States -- may not be at the heart of our problems, it isn't divorced from them either. It is at least conceivable that our politics would be improved if our English were, and so would other parts of our national life. If we were more careful about what we say, and how, we might be more critical and less gullible. Those for whom words have lost their value are likely to find that ideas have also lost their value. Maybe some people discipline themselves in one and not the other, but they must be rare.

The liberally educated person generally has not only a wide-ranging sense of curiosity, then, but he also has detailed and useful knowledge.

and skills, including the skills of communication. To use a somewhat hackneyed metaphor, the liberally educated person has the ability to see both the forest and the trees.

**COMMITMENT**

A third general feature of the liberally educated person is a sense of commitment. This commitment manifests itself in several ways. First, one is usually dedicated to the continuation of one's education beyond the period of formal study. The life of the mind demands continued growth and ever wider experience once the fruits of a liberal education have been tasted. The sense of curiosity drives one into new areas of learning, and motivates this commitment to continued education throughout life. Second, one who has been properly educated has a sense of perspective and the analytic skills necessary to analyze and interpret the complex problems which our modern technological society creates. It is vital for the success of our democratic form of government that its citizens make informed choices among alternative solutions to problems in civil, social, and political sectors of national life. The list of potential disasters facing the world today is long, and need not be rehearsed here. If solutions are to be found to these critical problems, they will probably not be found by specialists blindly pursuing their narrowly defined interests. The solution will probably be found by knowledgeable, committed people who have the vision and skill to apply disparate types of data in new ways. A liberal education carries with it an obligation to become a leader in the search for the solution of society's problems.

Liberally educated people, then, can be recognized by their curiosity, their creativity, and their commitment. Such people are interesting to know, stimulating to challenge, and inspiring to work with. Can there be any finer goal in education?
Who is a liberally educated person? Would you know one if you saw one? Would the appearance of Bachelor of Science or Bachelor of Arts behind a person's name be the certification of being liberally educated? Would having a book published signify that the author is liberally educated? If possession of a college degree is the certification for being liberally educated then is it impossible for non-college graduates to be liberally educated? If writing a book signifies that the author is liberally educated then does what is said by the author therein make any difference?

What does the question ask? It asks for a description of a person who has developed certain personality qualities which are necessary for human freedom. It asks for a description of a person who is becoming to be humanly free. An appropriate answer to the question will describe in what ways humans must be free.
A description of the personality qualities of
the free person can be organized around two
complementary ideas of freedom. On the one hand
freedom can be considered in a negative fashion,
that is, as freedom from some hindrance or
barrier. For instance, a person could be con-
sidered free from barriers to communication if
he had well-developed skills in reading, writ-
ing, speaking, listening, and mathematical
computation. A person could be free from
barriers to fulfilling leisure if he had well-
developed skills in dancing, in painting, in
sculpting, in sports, and so on. A person could
be free from barriers to understanding the
related problems of energy and environment if he
had knowledge of such things as pollution, of
renewable and non-renewable energy, of conserva-
tion and the economics of production and
consumption.

On the other hand, freedom can be considered in
a positive fashion, that is, as freedom to
choose positive action in engagements with life.
A person who has communication skills is fully
free to communicate only when he chooses to use
his skills in reading, writing, speaking,
listening and mathematical computation. A
person is fully free to engage in leisure only
when he chooses to dance, to paint, to sculpt,
to play sports, and so on. A person is fully
free to comprehend energy and environment only
when he chooses to relate to one another his
knowledges of pollution, of renewable and non-
renewable energy, of conservation and the eco-
nomics of production and consumption. Negative
freedom is like the unlocking of the door to a
great library of possibilities, that is, it
makes the possibilities accessible. Positive
freedom is like choosing to walk through the
unlocked door and browse among the possibili-
ties. Negative freedom and positive freedom are
two sides of the same coin.

The liberally educated person is someone who
exhibits certain qualities of freedom in the way
he lives. These qualities will be identified
and described briefly. They are in no special order or priority.

**Freedom from the hindrance of geographic, ethnic, religious or national provincialism and freedom to engage in an interdependent world.**

The liberally educated person recognizes the limited perspective which his personal background provides him for comprehending and interpreting human events that transcend his provincialism. He positively pursues knowledge of the rich cultural diversity of the world's peoples in the rituals and symbols associated with such human events as, for example, birth and death. He is fascinated with the complex interconnectedness of historic, political, geographic and religious factors in developing diverse human responses to such events. Although he is cognizant of the daily need to live his own life by some sense of what is "normal," he is, at the same time, fully aware that intelligent, sensitive people from other backgrounds follow different norms in their daily lives. Study of foreign languages and cultures, interacting directly with persons from different cultural backgrounds and travel or study in foreign places are a few of the ways in which knowledge of cultural diversity is gained.

**Freedom from hindrance of concern only for "practical" knowledge and freedom for pursuit of knowledge primarily for the pleasure of knowing.**

The liberally educated person is free to seek to know some things which are of interest to him but which are not for immediate use in his daily life. The pursuit of knowledge for the pleasure of the knowing indicates a choice made freely by the person for his own reasons - not because the acquisition of such knowledge is forced upon him by the need to do something with it. Indeed, the pursuit of personally interesting, but non-utilitarian, knowledge is an expression of the liberally educated person's freedom to transcend the mundane.
Freedom from the hindrance of narrow preoccupation with one's personal problems so that one has freedom to experience empathy (feeling with) for some common human tragedies.

The liberally educated person does not become so blinded by his own personal difficulties that he is unable to empathize with those great human tragedies which dwarf most personal problems. He is able to feel with the victims of violence, of prejudice and of deprivation. He is able to feel with those affected by chronic, debilitating disease, by alcoholism or by narcotic addiction. He is able to feel with those who experience personal meaninglessness and alienation in a technological, mechanized and computerized world. Beyond the experience of empathy the liberally educated person is free to participate in the alleviation of such tragedy through voluntary personal assistance to victims, contributions to charity or through work contributed to helping organizations.
Freedom from hindrance of excessive desire for social acceptance so that one has freedom for expression of outrage at human transgression.

The liberally educated person is not so bound and gagged by the common human need to be socially acceptable and liked that he is afraid to express his anger at actions which insult human dignity. He seeks positive ways of reacting against individual or group efforts to discredit an individual unfairly. He refrains from participating in derogatory actions such as ethnic jokes or insulting "cheers" directed at the players and fans of visiting athletic teams. He refuses to engage in and, indeed, discourages his companions from careless and willful vandalism against public or private property.

Freedom from the hindrance of excessive pessimism so that one has freedom to affirm life in positive ways.

The liberally educated person is not so impressed with the preponderance of negative events reported by television and newspapers that he fails to see and to note the dozens of simple acts of kindness and courtesy which occur around him daily. He is not so numbed by existential anxiety that he neglects to greet family, friends and strangers cheerfully. He freely offers assistance in daily activities such as pushing stalled automobiles, feeding pets in the absence of their masters and transporting neighbors' children to school functions. Although he does not say that everything is for the best in the best of all possible worlds, he recognizes, along with Patrick Dennis in Auntie Mame, that "Life is a banquet and some poor sons-of-bitches are starving to death!"
Freedom from the hindrance of excessive need to be correct, surely and safely, in everything one does so that one has freedom to make value choices in ambiguous situations.

The liberally educated person understands that he participates in constructing his own personality by making choices. He is free from chronic "decidophobia" (fear of making decisions). He is free to act rather than constantly wringing his hands in immobilized anguish about which way to move. He understands that life thrusts the need for decisive choices upon him and that, sometimes, he will have the luxury of adequate time and information to make the decision which will be correct and safe. He understands, also, that decisive choices are needed, sometimes, without adequate time and information. An incident in the novel The Cruel Sea illustrates this point.

During World War II the captain of a naval ship escorting a convoy was thrust into the role of decision maker in an ambiguous value situation. The convoy had just been attacked by a German submarine and the survivors from a sinking ship were floating in the ocean awaiting rescue while the submerged submarine was stopped directly under the survivors' area. It was not possible, safely, to rescue the survivors first and then attack the submarine. The captain could either rescue the survivors now and allow the submarine to escape to torpedo more ships or he could depth charge the submarine and the survivors. In either case the loss of human life was at stake. Life had thrust the captain into the role of anguished decision maker. He could not feed information to a computer to identify the mathematical odds favoring one decision over another. He could not consult a textbook or pursue a course in minimax theory of decision. He had to decide, there and then.
Freedom from the hindrance of lack of skills and freedom for choice of using diverse skills to engage fully in a rich life.

The liberally educated person has the opportunity for a richer life because his diverse set of skills provides increased flexibility. There are several classes of skills possessed by the liberally educated person.

Possession of marketable, employment skills frees a person from dependence upon others for the sustenance of food, clothing and housing and frees a person to engage life in ways other than those essential for bare subsistence. The skills which are used to produce economic goods and/or services contribute to the total wealth of society and buy the leisure needed for the human transcendence of brute necessity. The liberally educated person understands that employment skills are essential to provide the economic base for the liberating fulfillment of leisure.

Possession of logical reasoning skills frees a person from the impact of the half truths of propaganda and from the strident sales "hype" of business and political hucksters. Positive use of the skills of logical reasoning allows the liberally educated person to make order out of chaos. For instance, reasoning allows a recognition of the inherent relationships and interdependencies of environmental pollution, renewable and non-renewable energy sources, and the economics of production and consumption.

Possession of communication skills eliminates barriers to human socialization and frees a person to develop his potentials through education. Communication skills involve the use of symbols and signs which include words, numbers, bodily movements, sound, design, color and texture. These symbols and signs are applied to many skills, such as reading, writing, speaking, listening, mathematical computation, dancing, singing, playing musical instruments, gesturing,
painting and sculpting. The liberally educated person not only possesses these skills, but chooses to use them to enrich his association with other people and to enrich his understanding of his world.

Possession of leisure activities skills eliminates barriers to enrichment of life in those areas which are freely chosen for their intrinsic value to a person. To choose freely to paint, to sculpt, to play tennis, to climb a mountain, to play the piano, to play golf, or to dance expresses the uniqueness of a person. The liberally educated person chooses such activities for the intrinsic, self-sustained joy of focusing all his energies on a self-chosen project. Beyond the sheer, personally integrating pleasure of immersing oneself in leisure projects the liberally educated person positively enriches his world in two ways. First, in so far as the art objects he produces and the sports events he completes display and embody him as he is, he provides himself with an accurate mirror in which he may understand himself better. Second, his art objects beautify the environment for himself and others. His sports events, when they involve others, provide them with their own mirrors for self-understanding.

Conclusion

Are there any more qualities of freedom which the liberally educated person displays in his living? Probably, yes! This statement represents the thinking of one person who is in the process of becoming a liberally educated person. It is a statement of conclusions drawn while still in the process of development. Since the process of becoming liberally educated is dynamic rather than static, some totally new conclusions may occur in the future. Meanwhile stronger affirmation, or even rejection, of the conclusions stated here might occur.
Who is a liberally educated person? In short form, a liberally educated person is someone in the quest of living a life of authentic human freedom. Although presently held conclusions about the characterization of a life of true human freedom are satisfying, they are not final and the continued quest is an invigorating journey. Colleges and universities have special relevance to such a quest. However, it should be clear, the qualities discussed here can be achieved by persons without a college education. Colleges and universities have special relevance to the quest by providing the richest, most concentrated environment for the acquisition of the knowledge and skills which are needed for human freedom. College students are provided an environment which eliminates major barriers to the acquisition of knowledge and skills needed for their own quest to become liberally educated. How many will choose to master the knowledge and skills so that they may then choose to engage in the continuing quest for their human freedom?
DEMOCRACY AND THE LIBERAL ARTS: IS THERE A CONNECTION?

I am convinced that one of the most prevailing errors made by young people entering college today is too much concern for their career. I do not mean to say that thinking about one's eventual occupation is a mistake, but only to suggest that during one's freshman year it is not the most important thing.

I say this partly for the usual reasons. Both statistics and common sense tell us that in most cases one's eventual career choice is quite different from what one thought it would be as a freshman. Moreover, there are certain qualities of personality, certain analytical and creative skills, certain ways of using language and ideas that are of more importance than one's final career choice. The freshman year is the time for developing these qualities. If it is seen solely in terms of career training, the true
meaning of "education" (as opposed to "training") has been missed.

But I have an additional set of reasons for objecting to a premature focus upon career training in the early years of education. I believe the purely career-minded student may be developing a set of attitudes that is potentially dangerous to democracy. This will be my proposition in the following essay.

I once heard a student explaining to his advisor why, although he had managed to pass four of his five courses in the first semester, he had failed the fifth. It was a general introductory course in Western Civilization. He had found the reading difficult, the assignments onerous, and besides, he announced, "Western Civilization is not in my field."

Since he wasn't my advisee but someone else's, I bit my tongue and said nothing. But later I reflected on how sad it was that a seventeen or eighteen-year-old student, with his peak years of intellectual growth still ahead of him, could be so confused about the nature of education—to say nothing of his role as a functioning member of society—that he could dismiss even an introductory survey of his own culture as "not in his field." It was only later that I realized that such an attitude was not only tragic from a personal point of view—stunting one's intellect at an early age—but that it was dangerous as well.

Our democratic system is built upon the assumption that the citizens in general have enough education to make intelligent choices about their political leaders and the policies they should follow. Under fascist or communist dictatorship, such an education is unnecessary, since the people never have the chance to exercise their judgment in the first place. Not only is a liberal education unnecessary, but it is downright dangerous, for a general education can stimulate an inquisitive, skeptical sort of
mentality that only causes trouble in a totalitarian dictatorship.

That is why totalitarian dictatorships are generally hostile to what we in America have called "the liberal arts." That is why Thomas Jefferson, who not only was a great statesman but a philosopher of education as well, drew a close connection between informed citizens and democracy. The purpose of general education, he wrote, is "to enable every man to judge for himself what will secure or endanger his freedom."

The phrase "liberal arts" derives from the Latin "liber," which means "to set free" - in the same sense as "liberate" or "liberation." To set free from what? From ignorance, from prejudice, from old habits of thought, from the influence of those who may for the moment be more powerful than you. No wonder the liberal arts are unwelcome in dictatorships, wherein the citizens are seen as trained robots, capable of performing a few useful tasks, but little else. In a fascist society, wrote William Ebenstein in Today's Isms, "general political problems are assumed to be too complicated for the masses, who are expected to understand only those issues that bear directly on their vocational or professional work." George Orwell, in his famous novel 1984, also makes clear the connection between tyranny and the suppression of the inquiring mind.

What troubles many thinking people is that in recent years the liberal arts seem to be under attack in America as well. Not that anyone is so foolish as to demand their elimination, but rather we frequently hear, often from educators themselves, that the liberal arts must be "re-evaluated," "revised," or "re-assessed" in the light of changed conditions. Education, we are told, must take new note of the "real" world of employers' demands, and cut back on the theoretical and esoteric luxuries of philosophy, music, or the pure sciences.
Changes in attitudes toward the liberal arts are often reflected in other changes. The undergraduate curriculum was once thought to be the means by which the student developed a rigorous, inquisitive mentality that could carry him or her into adulthood. Courses of study that developed abilities that could be applied to any number of career choices now are twisted toward training for only one. Heaven help the student who changes his/her mind halfway through college! But more importantly, Heaven help the nation whose citizens are specialists, ignorant of their history, the workings of their economic and political institutions, their culture, their scientific traditions, their language, or their literature. What happens when the majority of the citizenry are so absorbed in their immediate material concerns that they no longer are capable, in Jefferson's words, of determining for themselves what will secure or endanger their freedom?

It is frequently said, with some justice, that in recent times the "knowledge explosion," particularly in technology, has made it impossible to provide much time or space in a curriculum for subjects not directly attached to one's career ambitions. No longer can one, as did Sir Francis Bacon four centuries ago, "take all knowledge to be his province." In 1754, what later became Columbia University announced in its prospectus:

It is the design of this college to instruct and perfect Youth in the learned languages and the Arts of reasoning correctly and speaking eloquently; and in the arts of numbering and measuring, of surveying and navigation, of Geography and History, of Husbandry, Commerce and Government, and in the knowledge of all Nature in the Heaven above us and in the Air, Water, and Earth around us, and the various kinds of Meteors, Stones, Mines, and Minerals, Plants and Animals, and of everything useful for the comfort, the convenience and Elegance of life...and finally to lead them from the
study of Nature to the Knowledge of themselves and one another.

Those were brave words, and we may smile with both admiration and condescension at the confidence with which our ancestors assumed one could do all that in just four years. The knowledge explosion has made it all but impossible in our day, even for the best of us. Does this mean that the liberal arts ideal is doomed to extinction in a welter of word-processors and information management? Not at all. Re-read the prospectus quoted above. Note that the purpose of studying such diverse subjects was not for their own sake, but to lead the students to the "Knowledge of themselves and one another." By studying "Nature" (broadly conceived, of course) we learn more about ourselves, and through self-knowledge, acquire the self-confidence that is one of the true aims of education.

What is true of self-confidence in the individual is true of self-confidence in a society. Democracy cannot live long in a society unsure of itself, of its past or its present or its future.
The purpose of the modern liberal arts tradition is not to make us experts in every field. But it can give us the foundation for making intelligent judgments. The fact that I do not play football does not necessarily prevent me from distinguishing a good team from a poor one, provided I have seen a few games and taken an interest in it. More importantly, the fact that I am not a physician does not prevent me from making a judgment about smoking cigarettes. The fact that I am not an economist does not prevent me from making a judgment when I am told that the only cure for inflation is to cut government spending. The broader my background, the more intelligent judgments I am capable of making.

In recent years this nation endured a complex constitutional crisis touching upon the nature of the Presidency and the powers granted to it. At the present time it is involved in equally complex difficulties touching upon foreign affairs and domestic economic policy. Can anyone maintain that such matters are "not in my field"? In whose field do they lie? To abandon the responsibility that each of us has in a democracy to make intelligent political decisions is to pave the way for a dictatorship of either experts or demagogues. And a first step in that direction is to exclude from the concept of education any serious consideration of such matters and their relationship to the individual citizen.

I am not pleading for mandatory courses in current events. I am pleading for an approach to education that requires the mind to exercise its full potential and to appreciate the complexity of the world in which we live. No one can make an intelligent judgment about nuclear power without some knowledge of physics; no one can make an intelligent judgment about the various crises in the Middle East without some knowledge of Moslem culture; no one can make an intelligent judgment about abortion without some grounding in philosophy, political theory, and perhaps theology. But there will always be
demagogues loose in the land, preaching the Single Answer to these and other complex ques-
tions. It is the responsibility of educated people, liberally educated people, to keep them from coming to power.

I believe that there still is a basic fund of knowledge one has to have in order to function in today's world. One ought to know, for example, the difference between Groucho Marx and Karl Marx, between Martin Luther and Martin Luther King, between micro-economics and macroeconomics, between the theory of evolution and the theory of relativity. But where will the biology major learn about Marx? Or the business major about Luther? Or the history major about macroeconomics?

If we all are specialized, this means we are dependent upon others to make judgments for us in every field but our own. Thus overspecialization defeats the democratic purpose. "What is one to expect," asked Alexis de Tocqueville in his epic Democracy in America, "from a man who has spent twenty years of his life making heads for pins?" Obviously, not much, especially if everything other than pin-making is seen as outside the pin-maker's field.

Specialization is appropriate after one has had a chance to look around, so to speak, and survey the scenery. Indeed, it is only through a strong liberal arts background that one can fully appreciate where one's specialty and major fits into the broader picture, and what its strengths and weaknesses may be. Brockport, like all liberal arts schools, enables one to both acquire the necessary intellectual skills and sophistication that go with a liberal arts education, and then to go on to a specialty of one's own choosing. This combination, and this sequence, best serves the interest of the individual and society. For we must never
forget that we are not only preparing for an occupational category, but for ever-changing roles as leaders, followers, workers, executives, citizens, soldiers, politicians, wives, husbands, mothers, and fathers, in a society that literally depends upon the generally educated citizens for its survival.
FROM SOCRATES TO BROCKPORT: YOUR PLACE IN A LONG TRADITION

As an entering freshman at Brockport you are faced with a task that resembles ordering from a Chinese menu. From a list of exotic sounding choices labeled "General Education" you are expected to order a balanced feast. You don't know exactly what will be served and the whole process seems like the least of your problems as you begin a college career. From this inauspicious beginning you would not be likely to suspect that you are taking part in an enterprise that dates back to ancient Greece and that reflects the central developments of Western civilization.

I

The ancient Greeks, who are usually considered to have begun Western culture, contributed far more to our lives than the Olympics and nude statues. They were the first Europeans to have the peace and order that would allow them to
turn their minds to problems beyond mere survival. A "free" man in Greece was one whose life was free of drudgery and provided the leisure to develop his intellect fully in the quest for the good society. It is no accident that "school" derives from the Greek word for leisure. But "leisure" is also a misleading term because Greeks thought of it as the time for the hard "work" of learning. To become truly educated, and thus free, one had to master the seven "Liberal Arts": grammar, rhetoric, logic, arithmetic, geometry, music, and astronomy. As Aristotle defined them, the liberal arts were the "proper study of free men who seek moral and intellectual excellence in general rather than what is immediately useful."

The questions the Greeks asked and some of the answers they found have set the framework for the thought and education of Western civilization. The central thrust of liberal arts was the search for truth structured around the questions: "What is the good society?" and "What is the good life?" The utopia Plato described in The Republic may not provide perfect answers, but it offered a model of careful and logical inquiry. Although we have not accepted all Greek values, the questions of what is knowledge and what is good, real, beautiful, or logical remain the basis of our philosophical thought. Greek work in science and medicine set the standard for centuries, an influence reflected in the continued use of the Hippocratic Oath by modern doctors. The "danger" of liberal inquiry was also apparent in ancient Greece. The search for truth is always a threat to the "establishment" of any society. Socrates' execution by hemlock cocktail was the end result of one man's search for truth that made the authorities uncomfortable.

By now you must be wondering how this trip to ancient Greece relates to your own academic life. The relation is more direct than you might expect. The ideas of the Greeks were adopted by the Romans and spread to the corners
of the Empire. Unfortunately, the Roman version of the liberal arts often lacked the originality and vitality of Greek thought, but an important tradition was kept alive. From the Roman Empire the Greek classics and some of their spirit was passed on to Islamic and Christian societies, through them to medieval Europe, and eventually to America.

Classical Greek and Roman culture posed a dilemma to the early Christians. They were rebelling against the moral and religious order of the Roman Empire and its Greek antecedents, but could not discard their whole cultural tradition. For centuries debate over the suitability of the "pagan" literature was the central educational issue of Christendom. An accommodation between the classical and Judeo-Christian traditions was not fully worked out until Aquinas' synthesis in the Middle Ages.

With the solution of this dilemma in medieval Christian learning came the origins of the institution you have already entered: the University. Although the Greeks had originated the idea of liberal education, they had not tried to place it within an institution. Perhaps this is just as well: the thought of Socrates giving Plato a C+ on a term paper jars our image of Athenian learning! The origins of formal higher education seem to have been quite accidental. Although there were impressive Islamic universities, these examples seem to have had little influence in Christian Europe.

Instead, formal higher education grew accidentally from groups of students who gathered around charismatic men of learning in the eleventh and twelfth centuries. The most famous was Abelard of Paris whose life was portrayed in the Broadway play "Abelard and Héloïse." Unfortunately the scholar's relationship with Héloïse was not part of the approved life style for a medieval priest, and Abelard was rushed off to a premature retirement by enemies who feared his questioning of all established beliefs. But the
impetus continued and groups of students continued to gather in Chartres, Salamanca, Paris, Bologna, and elsewhere. Then, as now, townspeople looked upon students as dubious blessings and periodically sought to expel them by force. The students turned to the Church and civil government for protection.

The formal charters that resulted from this appeal to authority established many of the basic forms of University life that are found in Brockport today. The word "university" stems from the Latin word for guild ("universitas"), the medieval trade association that protected the interests of merchants and craftsmen. "College" derives from "collegium" which meant residence. The name "State University College at Brockport" exemplifies the medieval connection. The practices of employing masters to teach the students, of awarding degrees for successful learning, of instructing by lecture and testing by examination began in the Middle Ages. The tradition of students residing together and studying the liberal arts for a bachelor's degree before beginning graduate or professional studies has a similar heritage.

How did the University reach the English-speaking world? This transit was a byproduct of one of the great dramas of medieval life, the struggle between King Henry II of England and Archbishop Thomas à Becket. As part of their titanic struggle (which you may have seen dramatized in the movie "Becket") the English scholars at the University of Paris were forced to leave in 1167, and they resettled in a small town up the Thames from London called Oxford. Of course, saying that the liberal arts had reached an "English-speaking" country is somewhat misleading, as French and Anglo-Saxon were the languages spoken in England at the time. How did these scholars surmount the language barriers? The answer is that Latin provided a common language; it was far from a "dead" language. From our seemingly sophisticated twentieth century vantage point, perhaps we have
to pause and wonder whether our medieval ancestors didn't have an important advantage over us in international understanding.

Our tale of the transmission of liberal arts to our own times continues to combine high purposes and low scandal. The University of Oxford prospered for a while but floundered on the rock of "town-gown" relations. Some students were accused of murdering a local woman and the town retaliated by hanging three erstwhile scholars. King John (remember Robin Hood's adversary?) refused to place the University under his protection, so the survivors fled across England and resettled in Cambridge in 1209. A few years later some teachers and students returned to Oxford. The new monarch, Henry III, placed Oxford under his protection, and even granted the University the right to control the price of bread and wine. In addition, the town of Oxford was required to give an annual feast for the poorest students. Since teaching also continued at Cambridge, England now had two universities.

The curriculum at Oxford and Cambridge continued to be based upon a classical version of the liberal arts for the four centuries that spanned the time from the hasty founding of Cambridge to the settlement of the American colonies. Undergraduates pursued studies that were based upon Greek knowledge, especially Aristotle's writings. Studies in divinity, medicine, and law were offered as graduate courses to be taken after students had a firm educational foundation in the liberal arts. The Reformation shook the English universities with conflict as control shifted from the Catholic church to the Anglican monarchy. Under Queen Elizabeth some non-Anglican students were able to continue studying, especially at Cambridge. But King James tightened the rein and virtually excluded "dissenters" from English higher education.

Among those banned were a group called "Puritans" who placed a very high value upon liberal education. They, like Socrates, felt that you
could not be virtuous if you were ignorant: without knowledge that "auld deluder Satan" would lead you down the path of sin. A group of Puritans decided to create their own society beyond the monarchy. In 1628 they established their "Holy Commonwealth" near present-day Boston. Their great concern with education was reflected in the remarkable feat of establishing a college only eight years after landing in the wilderness. They deeply feared that once their current generation of Cambridge and Oxford educated leaders "lay in the dust" their frontier settlement would decline into barbarism. Thus, in 1636 the General Court of Massachusetts Bay Colony accepted a donation from John Harvard and chartered a college.

The continuity from the "old world" was reflected in the location of Harvard College in a town named "Cambridge." The curriculum, which was modeled upon Cambridge's, connected students on the Massachusetts frontier with classical antiquity. Latin was an entrance requirement and
the language of instruction. Harvard students had to master six of the seven traditional Liberal Arts (Grammar, Logic, Rhetoric, Arithmetic, Geometry, and Astronomy) as well as Greek and Hebrew. Science and philosophy courses were based upon Aristotle's view of the universe. Through this course of study it was expected that Massachusetts Bay's future leaders would develop the understanding of their heritage and the mental habits that would enable them to steer the Colony clear of the twin perils of barbarism and Satan. Thus, the idea of the liberal arts survived the perilous voyage through medieval society and landed, via the old and new Cambridge, in America.

With cautious revisions, the educational tradition Harvard brought across the ocean remained that of the "founding fathers" of the United States. The Aristotelian view of science fell before the findings of Copernicus and Newton. Colleges bought telescopes, made arithmetic an admissions requirement, and offered more advanced mathematics. Some faculty also brought a more scientific and questioning approach to understanding man and society through the writings of Descartes, Bacon, Locke, and others. Students founded debating societies and libraries that gave wider scope to the new thought patterns. But essentially the formal curriculum retained its traditional purposes. This modified view of liberal arts produced men such as Adams, Jefferson, and Madison, who would reflect this thought as they gave their stamp to American institutions.

II

While classical thought with modest revisions had provided the basis of Western civilization for over two millennia, the social and scientific changes of the Nineteenth century brought basic changes to the idea of liberal arts. The explosion and fragmentation of knowledge destroyed the ideal of the "Renaissance Man" who had mastered every variety of knowledge worth
knowing. The curriculum had to reflect the new complexity and specialization.

By the late 1800's important changes in college organization were unavoidable. For instance, colonial colleges typically offered only a single course in science and one in astronomy. But by 1900 any respectable college was expected to offer a series of courses in each of five or six branches of science. Previously a single course called Moral Philosophy sufficed as the examination of social issues. Now this course was divided and expected to be scientific, resulting in the social sciences of economics, political science, sociology, anthropology, and some aspects of history and psychology. The courses in philosophy that had once dominated the curriculum were relegated to a single department. The "dead" languages of Greek, Latin, and Hebrew virtually disappeared and foreign language instruction shifted primarily to French, Spanish, and German. In place of classical literature courses, English Departments offered exposure to another linguistic tradition. Philosophy, Foreign Language, English, and sometimes History Departments constituted what came to be called the "humanities."

These changes reopened the question of what constituted an educated person. No longer could a faculty confidently plan a single curriculum for all students that included a sample of everything that was worth knowing. For several decades there was confusion. Requirements were dropped and the curriculum lost its rationale. There was no consensus on what constituted an educated man or woman. As courses were added and requirements dropped, the academic program was increasingly determined by unstructured student choice. This elective non-system reached its zenith at Harvard in the 1890's when the omnipresent Freshman Composition was the sole surviving requirement.

In the early 1900's the curriculum was restructured in terms of new attempts to define liberal
education. In reaction to the shapeless Harvard curriculum, educators led by Woodrow Wilson, then President of Princeton University, implemented a new system. The first two years would be spent sampling the areas of knowledge. This "distribution" requirement (do you notice something familiar?) was designed as a pale reflection of the old sense that an educated person should be familiar with every area of knowledge. That was clearly no longer feasible. Instead, various subjects were grouped together and each student could choose several from each category (the beginning of the Chinese menu syndrome). Students would have choices, but they would be guided into a well-rounded program of study. To satisfy the need for specialization, students would concentrate (or "major") in one area. The remaining courses would be free electives. This system, which is the essential outline of your curriculum, has been the dominant pattern in American higher education for most of the twentieth century.

The new approach offered a compromise between those who wanted more specialization and vocational training in higher education and those who feared the growth of a shortsightedness and narrowness. Increasingly occupational training for areas like teaching, business, home economics, and health became majors that followed a liberal arts core. Other professions, especially law, medicine, and theology, reaffirmed the medieval tradition of requiring a bachelor's degree before admission to specialized study.

An attempt to once again give students an integrated sense of the Western experience resulted in the famed "Western Civilization" course. Begun at Columbia University after World War I, this effort to heal a fractured world became a delight or curse to generations of college students. But the relegation of what had once been the central purpose of a college education to a single course was indicative of the difficulty of retaining a sane and integrated sense of the twentieth-century world. Even this
broad course began to look parochial as the "Third World" pushed itself back into a rightful place on the world stage, and it became apparent that even a course on Western civilization covered only a minority of human experience. Where American colleges had once felt justified in promoting Christian (essentially Protestant) traditions and values, a new heterogeneous population and a new skepticism towards "old values" made the foundation of an integrated curriculum founded upon common assumptions nearly impossible.

In the face of this confusion and increased student demands for greater choice many requirements were dropped in recent years. In the energetic days of the 1960's unstructured student choice seemed to promise a new era. But in the different climate of the 1970's, this optimism gave way to increasing faculty frustration at the directionlessness of many students who floundered in such an amorphous curriculum.

The General Education program at Brockport is part of a nationwide attempt to restore some order to the college curriculum and some sense of the ethical concerns that should accompany a liberal education. There are some new components: fine arts, learning skills, statistical literacy, and non-Western studies. There is the eighty-year old distribution and concentration system. And there is the ancient concern that students not concentrate solely upon their own material welfare but rather learn to think systematically about society, nature, and the human experience so as to be able to carry the burdens of citizenship more intelligently and humanely.

III

Where does Brockport intersect with these broad sweeps of Western civilization? The catalyst for this might be said to have been the Erie Canal. "Clinton's Ditch" reached Brockport in 1823 and, as the canal's western terminus for two years, the village grew rapidly. For the
next few decades Brockport flourished with its canal trade and various industries. The enthusiastic religious revivals of the Second Great Awakening also left the growing village with active Protestant churches of several denominations.

Brockport State owes its beginning to a combination of local boosterism and denominational enthusiasm. In the early 1830's New York State's rapidly growing Baptist organization decided that an educational institution under its auspices was needed in western New York. Thanks to a gift of six acres and cash from Heil Brockway (after whom "Brockport" is named), the prize was brought to the banks of the canal. An impressive building was erected on the site of our own Hartwell Hall and in 1835 classes began. The depression of 1837 brought the venture to a
sudden end and the building was sold in bankruptcy sale. Not for the last time would Brockport suffer from financial problems! When prosperity returned in the 1840's a group of wealthy citizens purchased the abandoned building and opened the nondenominational Brockport Collegiate Institute. The curriculum combined high school and college-level work and included a program for the training of teachers. After thirteen successful years disaster struck; on April 3, 1854, the College burned to the ground in a fire that was supposedly ignited accidentally by a student who was supposed to be in church that Sunday.

Showing remarkable resilience the leaders of the Village and the Institute immediately set to rebuilding. Within a year students were again studying Cicero, Caesar, Virgil, and Homer as well as modern languages, geography, ancient history, mathematics, and science. Although the recovery operation was an artistic success, the patient was suffering from terminal financial ailments. By 1866 the Brockport Collegiate Institute seemed doomed to follow hundreds of other small American colleges into oblivion.

But support from a new source turned Brockport onto a new course. Fortuitously, the New York Legislature passed the Normal School Act enabling the State to underwrite four teacher-training institutions at the then impressive annual sum of $12,000 each. The trustees of the dying Institute applied to become one of the quartet. Embarrassingly the Institute's property had been sold at a sheriff's sale. To get it back a special tax was proposed. The citizens of Brockport were less than enthusiastic about the idea and rejected it. But through dubious machinations the leaders of the village and the Institute eventually reversed the decision, retrieved the building, and offered it to the state. From fourteen applicants Brockport, Binghamton, Potsdam, and Fredonia were selected as recipients of the state's largesse; Buffalo and Geneseo were added to the state's list the
following year. Thus began Brockport's career as a state institution, although for many years a local board continued to control most of the operations.

In 1867 the State Normal School opened to students of at least 14 years of age who intended to become teachers in New York schools. The entering student could bypass the classics and leave in two or three years. Those wishing a more traditional and extensive program could stay four years and study Latin and Greek or a modern foreign language. In either program the students studied all of the seven classical liberal arts except music. In preparing teachers to venture forth into western New York schools, Brockport sought to insure that they carried the essence of Western tradition with them. For the rest of the century this tradition of combining liberal arts with teacher training continued. Among the faculty who imparted this tradition were several whose names are perpetuated in the names of campus buildings: MacVicar, McLean, Lennon, and Smith.

At the turn of the century Brockport moved into a larger building (the predecessor of Hartwell Hall) and a narrower curriculum. As part of a new state policy, most of the liberal arts content and intent were dropped. The course of study was reduced to a purely vocational two-year teacher preparation program. Those planning to teach in rural schools could take a one-year program! During the 1900's and the 1910's the Normal School, in effect, ceased offering a liberal arts education. The slow return of liberal arts and of a truly collegiate education began in the 1920's when the third year was restored. English, Economics, Geography, History, and Sociology were added to the offerings.

Just prior to World War II Brockport received a new setting and curriculum. The Normal School building had deteriorated and was replaced by the present day Hartwell Hall, complete with a
gym, theater, swimming pool, and Shakespeare Room. At the same time a fourth year was added to the curriculum and Brockport received degree-granting status and a new name, "State Teachers College." Among the participants in this period whose names grace our buildings are Briggs, Cooper, Bramley, Edwards, Hartwell, McFarlane, Neff, Perry, and Thompson.

Despite its "State Teachers College" name, Brockport had many changes ahead before it would escape from being what the College's historian has called "a glorified high school." Its mandated purpose remained the preparation of elementary, health, and physical education teachers, though that preparation came to be more broadly conceived and liberal arts became a major part of the freshman and sophomore years. An Honors Program instituted interdepartmental courses such as "Great Ideas and the American Experience" and "The Greek Foundations of Western Culture" in 1958. Several new Departments (Speech, Philosophy, Psychology, Foreign Languages) were added and a program for those wishing to teach in secondary schools was begun.

In the mid-1960's Brockport completed the evolution towards becoming a liberal arts college. In response to Sputnik and the growing demand for public higher education, the State University of New York (SUNY) transcended teacher training. Brockport officially became a "State University College," although "State Teachers College" remained etched in stone over the entrance to Hartwell Hall. Brockport adopted the distribution and concentration approach to the curriculum that had become standard across the country in the years since Woodrow Wilson introduced it. Freshmen and sophomores chose courses from five areas: Communications Arts, Humanities, Science, Social Science, and Fine Arts. Your General Education program is essentially structured around these five areas. After completing the distribution requirement students could "major" in English, Mathematics, Biological Sciences, Physical Sciences, History, and
Political Science. Additional "majors" and "minors" were soon added. In the 1970's there was a retreat from liberal arts as business administration, social work, nursing, and physical education became "majors." Teacher preparation remained available only as a second "major." Through the 1960's and 1970's Brockport evolved from a Teachers College into a multi-purpose college with a liberal arts core.

In the 1970's two major problems challenged Brockport's liberal arts commitment. One was external. The prominent role played by students and faculty in the civil rights movement, the anti-Vietnam War movement, and the "counter-culture" had brought hostility towards higher education and particularly towards the "dangerous" liberal arts from some parts of the society. The Nixon administration gave this feeling its clearest educational expression with its "career education" program that aimed to focus students' attention upon "fitting into the system" rather than examining it. Liberal education had done too good a job of teaching students to think for some people's comfort. Some businesses slanted their hiring towards more technical requirements, hoping to procure more conventional students. At the same time an economic slowdown and reductions in teaching and social services reduced the number of jobs in some of the favorite fields for liberal arts graduates.

Many students in the more docile 1970's generation overreacted and sought protection in more specifically vocational majors. Historian Frederick Rudolph (Curriculum: A History) found a similar trend across the country:

"If the Great Depression taught students to be skeptical of specialized learning, that has not been the case in the 1970's. Aware that national economies all over the world are in a mess, students flock into economics courses to find out how it is done. Enrollments in humanities courses drop, and enrollments in
business administration, engineering, and metallurgy sky-rocket, as students abandon a search for the knowledge that might make them interesting, even to themselves, and seek to achieve some kind of technical insurance against the future."

The second crisis was internal. During the rapid expansion of Brockport and the development of specialized departments, the appearance of a liberal arts education was achieved, but its substance may have been largely lost in the shuffle. The liberal arts, as conceived by the Greeks, were to lead one to examine man, society, and nature in order to reach preliminary understandings and to begin a lifelong search that made one a more responsible citizen, parent, friend, lover, neighbor, and economic producer. However, in the chaos of Brockport's expansion, the uncertain legacy of the 1960's, and the isolated specialization of the faculty, this broader vision was often lost. The liberal arts "core" courses too often became mere introductions to majors, often taught in mass or technological settings that were the antitheses of liberal and humane education. Your General Education program is a response to these two crises.

A Final Thought

Looking back at the evolution of the liberal arts, Brockport, and their intersection has been useful and provocative for me and I hope it has been for you. This retrospective glance leaves me with very strong feelings, some of which you may wish to challenge and hopefully will lead to useful discussion in your DLE sections. The last decade at Brockport has been characterized by a self-centeredness of faculty and students that has limited the meaningfulness of our attempts at liberal education. The question for faculty like myself is whether we are willing and able to place our specialized knowledge at
the service of the broader concerns of liberal education. Will we work to keep a dual vision of our mission as educators and as specialists?

Likewise it must be asked whether you are willing to rise above the self-indulgence and narrow-minded materialism that has characterized so much of student life in recent years. Will you have the discipline not to just pursue creature comforts as contented technicians in American technology? As a citizen of the richest and most powerful country in the world, will you take seriously your moral responsibility to understand the central issues of society, nature, and the human experience as fully as possible? Much of the world's destiny rides on the intelligence and humaneness of America's citizenry. Hopefully the General Education program at Brockport will help you begin a lifelong search for a better, and not just a wealthier, existence. If not, Brockport is doomed to produce contented technicians for the comfortable and smug American version of 1984.

*Note: Section III is derived from Wayne Dedman's history of the College, Cherishing this Heritage (New York: Appleton-Century-Crofts, 1969). Anyone wishing a more thorough depiction of Brockport's heritage is urged to turn to this delightful volume.
IAN H. HENDERSON

Music

WHY STUDY THE FINE ARTS?

History shows that each of us has an urge to be creative, or, at least, to respond to the creativity of others. Some of us like to draw or paint pictures...others like to look at pictures, pots, or sculptures done by others. Lots of us like to sing, or fiddle, or drum...or to hear others making music. On the stage we find enthusiastic dancers and actors...in the gallery, crowds of viewers who are the audience for those performers. These activities and others like them, known as "the fine arts," serve several purposes. They communicate feelings and ideas. They bring people together in friendly surroundings for diversion and entertainment. They add special dimensions to religious celebrations, political campaigns, and athletic events. The arts can give us a lift, a break in our pedestrian day-to-day existence, by providing excitement, beauty, or tranquility as needed.
Educators observe that by studying the art of a nation or a historical era we can better understand the people, their culture, and their values. The arts help us to interpret the social scene and sometimes the arts actually influence the direction of history's course. In recent times there appears to be an increased hunger for artistic awareness among students at all levels. Theatre, film, dance, music, and the visual arts are more evident now on the college campus than ever before. As we approach liberal education through the college experience, we need to become more conscious of the significance of the fine arts. We need to know what the arts are and to appreciate the aesthetic process. And we need to understand the role of the viewer, the listener, the member of the audience, since that is the part we will most often play.

How does involvement with the fine arts at the college level contribute to the aims of liberal or general education? Imagine yourself a member of the audience for a performance of a monumental theatre piece...it could be an opera like Verdi's Aida or a Broadway production like Bernstein's West Side Story. This multi-faceted work involves music, acting, dance, costumes, lighting effects, and stage design. Perhaps it is suited for adaptation to television or motion picture production. The talent and intelligence of the work's creator are such that he has dealt with many areas of scholarly and human concern. Sociology -- the characters of the drama reflect certain national or ethnic backgrounds; there are elements of family rivalry and interaction. Politics may be involved in the plot. Psychology -- human emotions play a part in the actions of the players as they exhibit varying personality traits. Philosophy and religion -- the story-line expresses conflicting sets of values and moral standards. Science and technology -- the production involves careful manipulation of the physical, acoustical, and visual environment. The artist draws upon his knowledge of all these areas to supplement language,
music, and movement, the artistic media of his production.

Would you concede that the artist who conceived this aesthetic statement and who designs its presentation must be a person who is liberally educated? After all, he draws upon concepts basic to many academic disciplines. But, now, think of the demands made upon us, the audience. The more we can interpret the work through our own acquaintance with history, literature, philosophy, the sciences, and principles of human and social behavior, the better we can realize the aesthetic impact of the artist’s creation.

Each art requires its particular techniques and practices, its own theoretical base, and each has had its unique stylistic and historical evolution. To suggest that in the process of being liberally educated we must search in depth into each of the arts is to suggest the impossible. Each art requires the exercise of our intellect in learning to know, analyze, and define its elements. Each art challenges our physical and sensory capabilities as we attempt to improve our performance and recognition skills. Each art calls upon our affective nature for appropriate response to the feelings the aesthetic experience creates. Obviously not all of this can be accomplished within the framework of a few liberal arts elective courses. Eminent artists and scholars have devoted lifetimes to their pursuit of excellence in a single area of one of the arts.

For most of us, the arts will play a secondary role, less engrossing than the subjects of major study, those of career emphasis or of professional application. Some, of course, will find their attention drawn to one of the arts for concentrated study. For anyone, after the first look, there can be more intensive investigation. But for the many who may never paint a picture, never compose a song, never write a play, never direct a film or choreograph a dance, there is a
need to learn to enjoy and evaluate the work of others, to become the informed, critical, and appreciative consumer, the intelligent member of the audience.

At every liberal arts college there are courses covering the historical and theoretical aspects of the arts, courses designed to help cultivate a broad interest in artistic activity. But there is general agreement, too, that actual involvement in art-making will strengthen both appreciation and understanding. At Brockport, most of the fine arts offerings come from four departments:

1. The art department provides art history and studio courses with activities in design, drawing, painting, print-making, photography, film-making, sculpture, jewelery, metalwork, and ceramic art.

2. The dance department teaches dance performance, choreography (dance composition), dance history, kinesiology (movement anatomy),
ethnic and folk dance, jazz and tap dance, ballet, modern dance technique, and music for dance; dance lighting and technical direction are covered as well.

3. The music department offers music theory and composition, music literature and history, keyboard studies and technology (including instrument building, tuning, and repair), early music performance, jazz studies, and applied music (performance as soloist and in ensemble).

4. The theatre department features course work in playwriting, theatre history and criticism, creative drama, puppetry, children's theatre, directing, acting, and technical aspects of theatre.

There are laboratory and extracurricular experiences in each area culminating in concerts, exhibitions, and stage productions which serve the cultural needs of the entire community. Certain courses, especially those which involve more than one of the arts (aesthetics, arts criticism, and survey courses) are offered by the Faculty of Fine Arts and do not carry a departmental designation. Various ways of looking at the arts may be found in departments like History, English, Sociology, Anthropology, African and Afro-American Studies, Foreign Languages and Literature. The Communications Center, Continuing Education, Women's Studies, American Studies, and facilities with video, broadcasting, and film-making capability cooperate with the fine arts departments to strengthen general education opportunities.

The arts call upon us to be informed and to make critical or interpretive judgments. Involvement with the arts challenges us to improve our skills of observation, hearing, and execution. The arts require a sharpening of our awareness of feeling and its expression. The arts encourage us to recognize order, unity, and variation in design and arrangement. The arts enhance our understanding of other areas of
human interest and concern. One definition says that the arts are those objects, acts, expressions, and symbols which, by their composition communicate feelings, images, and concepts in ways that go beyond the power of ordinary language to convey. Hopefully, through each encounter with the fine arts, the student will come to know more about the creative urge, will feel more sensitively the emotional and intellectual message of the artist, and will take greater satisfaction in improving his or her own sensory and manipulative skills. These are the ways in which the fine arts can make life more fulfilling.

Suggested Readings in the Fine Arts


WHY STUDY THE HUMANITIES?

"Humanities" at Brockport is a divisional designation for the Departments of English, Foreign Languages and Literatures, Philosophy and Speech Communication and for the programs in American Studies and Film Studies. But, in a more fundamental and historical sense, the humanities are the branches of learning which include the study of languages, literature, history, and philosophy and which have their roots in the past, especially in the early civilizations of Greece and Rome. The distinguishing feature of these branches of learning is the centrality of concern with human culture and the stress that is placed on what is uniquely human in their fields of interest.

The humanities have always been concerned with the arts of basic human communication, with language as the primary medium of all communicated knowledge. The ancient Greeks felt that
an understanding of the linguistic arts, consisting of the trivium of grammar, rhetoric, and logic, was essential to personal growth and development. The arts of language are the arts of learning, the foundation for reading, writing, and thinking itself and, therefore, indispensable as tools for getting the mind to work. Language is also the primary way in which we come to possess our tradition: that heritage of values which can lead to the development of what D. H. Lawrence once described as the "spontaneous-creative fullness of being."

Those who teach in the subject disciplines of the humanities are well aware that a sensitivity to language is crucial today, particularly in view of the tendency of the electronic environment -- the television and computer world -- to reduce reliance on the value and power of the individual word. How to communicate with the minimum use of words has been a major challenge in our technological age; and like many other challenges successfully met, we have given our admiration. But by meeting this challenge, we have also created a Frankenstein monster that has returned to haunt us in the form of what some educators have described as a national illiteracy crisis. It would be unfair to hold our popular media entirely responsible for diminishing the importance of reading, but the fact is that visual communication has become so pervasive in our society that many intelligent people have supported the view that books as learning resources are out-of-date. It is also a sober fact that television consumes more hours of our time than school and does little to keep the mind or the imagination at work. Indeed, we have become, as a consequence, a nation of voyeurs forever seeking a steady flow of seductive and appealing images. It is a central mission of the humanities to restore the value of the word -- "the complex, sinewy, subtle and evasive word," as David Holbrook has written, "which is at one with life."
The mission of humanities extends beyond the issues of the linguistic arts and basic skills; the humanities are also liberalizing arts in the sense that they foster an expanded view of one’s life through the breadth of experience they offer. The study of philosophy, literature, history and foreign languages allows us to stretch our experience beyond our time and even the boundaries of culture. The philosophy of John Locke, the plays of Shakespeare, the history of English Imperialism, or the study of Hispanic culture provide us with the opportunity to develop a cosmopolitan sense of the world and to capture human experience in different lights and shades. Hamlet’s words to his friend remain telling: “There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy.” We are all Horatios, and, if our lives ever become quietly desperate, it may be the result of the deadening myopia that derives from a parochial view of the self. We simply must know more than the web of direct experience can provide. The humanities can be a means to achieve this liberation.
The goal of a liberal education is often described in strictly intellectual terms, but the purpose of the humanities is to educate the whole self -- the mind, the conscience, imagination, and even human feeling itself. Watergate, after displaying the devastating effects of narrowed sensibilities, has taught us to be concerned about ethical issues in the classroom. The exercise of power requires a moral authority for justice to be achieved. As a people, we also need a poetic vision to create alternatives to what is orthodox and ordinary and to enlarge our sympathies for what is unusual and different. In the words of the poet Shelley, we need first to "imagine that which we know" and then we need the "impulse to act that which we imagine." We need a creative energy that is released in community. In short, our intellectual life cannot survive apart from moral, aesthetic, and emotional considerations. A truly liberal education must be committed to the wholeness of human experience and must provide a view of human life that is both comprehensive and connected.

It is this concern for the integrity of wholeness that explains why the achievements of the past are so important in the humanities. We turn to the works of Dostoevski and Socrates, Augustine and Camus, Dickens and Shakespeare as resources of learning primarily because they reveal the human condition -- its problems and conflicts and the possible solutions offered; we turn to them as well because they are models of excellence and they remind us of the possibilities of human accomplishment; and we turn to them because, in the end, we come to realize the fundamental relationship between their worlds and ours. There is a solace in that company and a wide vision that comes from it.

The humanities are being tested and challenged today by unabashed pragmatism and the demands of the marketplace. Narrow specialization and rampant vocationalization are fostering the view that colleges and universities should be insti-
tutions primarily concerned with the preparation for careers instead of for life. But without the authority of intellect and without vocational objectives combined with liberal understanding, the role of the university in the modern world will diminish in significance and in impact. What is needed to counteract this disintegration is a frank and open commitment to the notion of the university as a center of ideas. "Without this conviction," argues Theodore Gross in *Academic Turmoil*, "the educational center would not hold and professional programs would have no intellectual touchstone for their own reality." 1

At Brockport, the humanities offer students the opportunity to find inspiration and understanding from the greatest achievements of the past as a way of obtaining an informed perspective of the present and a deepening engagement with the issues of contemporary life. The past provides the road to liberation and self-reliance. "A college should teach a student," writes Gross, "to think straight and see perceptively. But one cannot see if he is constantly watching the contemporaneous world, nose against the window-pane, so immersed in its dailiness and its sociology that he loses what was once called perspective. Knowledge is certainly not enough. It should lead to wisdom, which carries vision in its meaning, and in many of its manifestations it should result in social action. But without knowledge, wisdom is hard bought and social action founded on uninformed judgments. Knowledge cannot be only the sociology and economics and political science of the moment, ever shifting, stimulating an anxiety that stems from uncertainty, fogged by statistics that carry with them apparent truth. Without a past, what

1. *Academic Turmoil the Reality and the Promise of Open Education* (New York: Anchor Press, 1980), p.45. I recommend this book to the student interested in humanities education along with Otto Bird, *Cultures in Conflict* (South Bend, Indiana: Notre Dame Press, 1976), both of which provided inspiration for some of the thoughts expressed in this paper.
future can we have? And the purpose of the humanities is to offer the student a past which illuminates the present moment upon which we can build a future."
"So what is science, anyway?"
"Oh, everyone knows it's biology and chemistry and physics and all that hard stuff."
"Well, yes -- but no"

The English word science takes its origin from the Latin sciens (knowing) and in English we still use the word in the sense of highly perfected skill and knowledge: "She has the technique down to a science," or as Henry Higgins described the Hungarian, Soltan Kapa thy, "that blackguard who uses the science of speech more to blackmail and swindle than teach..." (Alan Jay Lerner, My Fair Lady). But we also recognize the more restricted sense of science as having to do with the description and understanding of the domains of nature. Science deals with energy and materials and living things and weather and resources (oil, iron, wood, people, etc.) and disease and nutrition and food supplies and pollution. But only a
moment's thought reminds us that descriptions and understandings of these same domains of nature are also provinces of literature, the fine arts, history, philosophy, politics, economics, and sociology. The creation and understanding of a pastoral symphony, the poetry of the Romantics, and a strange (that is, different and remote) culture also require and produce descriptions of nature. The objective of each of these creative efforts -- the artist's, the scientist's, the philosopher's, and others' -- is to discover the form and the structure of reality and to understand the implications of these discoveries.

Science, in the narrower sense, starts with the premise that we can describe and understand natural events; if we can discover in sufficient detail the order that exists and the rules that govern, then we can predict natural events. We believe that careful, objective observation and description will reveal the order and relationships that exist in nature. The observations and descriptions, however, must be sufficiently objective so that both the original observer and independent observers can repeat the observation and description. When we reveal enough of the order in nature we can discover the underlying rules which eventually we come to call the "laws of nature." The essence of doing science, then, is objective observation and description, leading to deduction of the governing principle from the observations.

PUTTING THE SCIENTIFIC METHOD IN PERSPECTIVE

Probably each of you has encountered "the scientific method" expressed as some variant of the following scheme:

1. Statement of the problem
2. Collection of data by observation and experimentation
3. Formulation of a hypothesis
4. Testing the hypothesis by further observation and experimentation
The key points are objectivity (of the observation and description) and a systematic approach to the endeavor. But "the scientific method" as described has been oversold. It implies a tidiness about doing science, an aloofness and lack of passion in the investigators, and a direct-to-the-"right"-answer course for experiments and ideas. Individual scientists' experiences and the history of guesses in science (wrong ones along with right ones) demonstrate that this tidiness usually is not present. However ingenious, classic, sophisticated, beautiful, virtuosic, difficult, even improbable an experiment is, in the end the "what do my results mean?" process is the most important part of the "method." It is here where imagination, creativity, persistence, hard thinking, critical thinking, luck, inspiration, and bias enter. The false starts, blind alleyways, prejudices, and personalities involved are seldom acknowledged beyond the privacy of the investigator's study, and seldom acknowledged once the "correct" idea comes clearly into focus.

Doing science involves making all sorts of choices: what is technically possible, what is financially possible, which of several experiments will be most likely to give the most useful information, etc. The choices often involve familiar human values and foibles, for scientists are neither more nor less human than persons in other callings. The value that sets scientists apart is their belief in objective, reproducible observation; that is, a scientist is committed to discarding any theory that truly disagrees with an objective observation (Jacques Monod "Chance and Necessity").

The following quotations (the first two from Peter Medawar and the third from Judson) may illustrate that doing science is not so cut and dried as descriptions of the scientific method seem to suggest. They show that doing science is more interesting and far more human an activ-
ity than step 1, step 2, step 3, step 4 and you're done.

"The intensity of the conviction that a hypothesis is true has no bearing on whether it is true or not." ¹

"If an experiment does not hold out the possibility of causing one to revise one's view, it is hard to see why it should be done at all." ¹

"... Reflect that biologists since 1950 have put forward more mistaken ideas than their predecessors did in all the millennia before—and some of the mistakes were beauties. The mistakes are inseparable from the science—not because they do happen but because they must happen. The creative faculty, I think, operates in the same manner when the physicist engages in reasoning and experiment, when the musician composes, or when the historian writes a page, and that is by the argument between invention and disposition, between the voice over one shoulder urging Try this, then and the voice over the other shoulder whispering Not quite right yet." ²

MAKING SCIENCE WORK FOR US

"That's terrific.... So leave the science to those who want to do it. Why expect me to learn any of it?"

The ideas, discoveries and accomplishments of science and the applications of science (which we may call technology) have strongly influenced the views and values of most cultures of


the world in the second half of the 20th century. We have come to look to science (and technology) to alleviate suffering, to overcome shortages, to increase our ease, to protect us from our own follies, and to avoid introducing disquieting or adverse consequences. Almost daily the newspapers report news of science with the potential for great influence on each of our lives. The list of changes which discoveries in the sciences have brought during the 20th century is long, and the changes are so incredible that they are like a fable. Some of the many benefits and unwanted adverse effects are outlined in Table 1. We are eager to reap the fruits of these new discoveries and to be protected from their adverse consequences.

Decisions to transfer discoveries from the laboratories into common usage are often not "scientific decisions" (that is, ones that can be made solely on the basis of broad, expert scientific knowledge); rather, they are "social decisions" and can be reached only on the basis of political, economic, and social considerations in addition to scientific and technical considerations. If we are to make judgments on the basis of information delivered by experts we must learn to hear all of what they have to say. We must grasp both the broad sweep of expert information and also the limitations and qualifications which the expert witnesses attach to their information.

The scientific expert is also subject to human limitations. Persons trained in a scientific discipline are also lay persons when the decisions involve scientific evidence outside the area of their science training, and we scientists, therefore, also need to exercise these same listening skills as we participate in such social decisions. As in all special divisions of knowledge "facts" and opinions often merge with one another. As we all do, scientists seek adherents and converts to
### Table 1
Some Recent Technological Changes Resulting From Scientific Developments:
Benefits and Detriments

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<thead>
<tr>
<th>Benefits</th>
<th>Detriments</th>
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<tr>
<td><strong>MEDICAL AGENTS, ANTIBIOTICS, and VACCINES</strong></td>
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<tr>
<td>Have controlled or virtually eliminated most infectious diseases</td>
<td>These agents may cause severe illness in some persons</td>
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<td></td>
<td>Other fearsome diseases (cancer, stroke, heart disease) have become more prevalent</td>
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<td></td>
<td>We have easily adopted lax attitudes toward our responsibility for our own health (&quot;If I get sick they will give me a pill.&quot;)</td>
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<td><strong>ENORMOUS ADVANCES IN POSSIBILITIES FOR MEDICAL DIAGNOSIS and THERAPY</strong></td>
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<td>May lead to prolonged useful and fulfilling lives, reduced suffering of illness, and fewer fears associated with health uncertainties</td>
<td>Are leading to impossibly expensive health care</td>
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<td></td>
<td>May lead to abandonment of personal responsibility for one's own health maintenance</td>
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<td></td>
<td>Accentuate value conflicts over the prolonging of life of the elderly, the severely (and irrecoverably) injured, and the infant with birth defects</td>
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<td><strong>TELECOMMUNICATIONS and DATA PROCESSING</strong></td>
<td><strong>DETRIMENTS</strong></td>
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<td>Have given us instantaneous and cheap communications for pleasure, business, awareness of the world out there, and national security</td>
<td>Have in many places aroused aspirations for an improved lot in life which existing social, political, and economic systems can only slowly fulfill, if at all</td>
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<td>Have intensified conflicts between cultures by juxtaposing video pictures with great immediacy</td>
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<td>Have made possible increased automation of manufacturing, thereby causing worker dislocation and possible unemployment</td>
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<td>Records may become too easily accessible and privacy more difficult to maintain</td>
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<th><strong>PLASTICS and SYNTHETIC FIBERS</strong></th>
<th><strong>DETRIMENTS</strong></th>
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<tr>
<td>Have given us an enormous range of new materials, lightweight, of great strength and/or convenience, for clothing structural purposes, and an almost uncountable variety of applications</td>
<td>Have greatly magnified waste problems</td>
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<td></td>
<td>— manufacturing wastes</td>
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<td>— consumer wastes</td>
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<tr>
<td></td>
<td>Have created competition with heating, transportation, and agricultural uses of increasingly expensive and perhaps soon to be scarce petroleum and natural gas resources</td>
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their opinions by rational argument; likewise, scientists may also appeal to emotions and employ propaganda to advance their opinions. If we acknowledge the basic tenets of science and the ways of doing science, if we recognize that science can make useful contributions toward the decisions regarding applications of laboratory discoveries, and if we recognize that science is an important but neither exclusive nor final authority, then we are well-prepared to participate in informed and rational social decisions.

SCIENCE AND CULTURE

Our attitudes, with respect to ourselves, to other persons, to nations, to other living things and to the natural world, are to a large degree rooted in our culture. But our culture is based to a considerable degree on what the world is, or on what we perceive to be the truth about nature. The liberal arts disciplines provide us windows to view various aspects of our culture. It follows that the pursuit and winning of a bachelor's degree in the liberal arts should lead us to develop an outlook and attitudes which are appropriate both to the possibilities and to the limitations of life. The sciences, since they seek to discover the truth about nature, represent a major foundation of our culture and an area of study indispensable for understanding these possibilities and limitations of life.

Ideas from men and women in the liberal arts (the sciences, the social sciences, the fine arts, and the humanities) find their way far beyond the circles of their disciplinary colleagues and become entwined in the general fabric of our culture as parts of the "truths" we perceive about ourselves, other people and the natural world.

For example, in the 19th century a prevalent view was that in the remote past the world had been set in motion according to fixed rules;
therefore, all the events we were witnessing were merely the playing out of this pre-ordered program. We humans could not exert any real control over the playing out of events. Schlegel suggests that an important root of this deterministic world view was Newton's laws of motion, and Pavlov's experiments on conditioned responses were seen to support the view that freedom of choice did not really exist.

It is not necessary, of course, that Newton's laws or Pavlov's experiments actually required the world's events to have been predetermined; it was enough that Newton's and Pavlov's ideas be perceived to support determinism. Many an idea, when it is taken from its original context loses its qualifications and perhaps even its main thrust as it is incorporated into a new context.

During the mid-twentieth century determinism lost its hold. Once again we believe that freedom of choice remains open to us, even though nature may have set limits on the biological and psychological possibilities for those choices. Schlegel finds that this change of view is rooted in part in the work of the quantum physicists. In the 1920's they recognized that Newton's laws are an approximation which is extremely good on the large scale, but hopelessly inadequate on the scale of the atom and subatomic particles. The quantum physicists recognized that on the atomic scale chance is an intrinsic quality of natural events, and that observing the event changed the course of the event.

In 1980 we see in current events that, like in atomic physics, chance is an important factor in social, political and economic events, and

that observers influence events. For instance, news reports of a hostage situation might prolong the crisis or encourage either the captors or the authorities. Looking toward the future, Judson suggests that the discoveries of what the gene is and how it expresses itself (the field now called molecular biology) will cause revisions to our perceptions of the world comparable to the effects of the quantum physicists. It is not yet clear just what these changes may be. In the case of quantum physicists, one outcome was discovering ways to release some of the energy which is the glue that holds the parts of atoms together; in the case of molecular biologists, one outcome, the practical results of which are just beginning to unfold, is the development of the technical capability to do "genetic engineering."

OVERCOMING THE INTIMIDATION OF SCIENCE

For most human activities we can recognize that people sort into two classes: performers and spectators. This is obvious in music, in dance, in entertainment, in professional
sports, in politics, in the courtroom; it is also true of the mason, the cabinetmaker, the farmer. We become a more appreciative (and critical) audience as we know the performance possibilities. We learn the possibilities and limitations of performance by witnessing many performances. We also learn these when we ourselves attempt to perform. Both experiences -- attempting to perform and witnessing polished performances -- heighten our appreciation when next we witness a performance. As you study science, then, we expect you to learn something of the ways of science, something of the limits of what science can do today, something of the mental skills and discipline a scientist needs and uses, and an informed appreciation for the doing of science.

The study of science is intimidating to many people. "I am incapable of understanding science" is an opinion many people hold, even though they are capable, thoughtful, and intelligent in most aspects of their lives. Several factors contribute to the fear of science and the study of science.

First, there are language problems. Science actually uses three languages: English, a technical language and a jargon unique to each discipline of science, and mathematics. Every branch of knowledge develops special language. In the sciences it is often easier to recognize the technical part of the language than in other areas of learning, for the technical language of sciences clearly looks different. While it is true that science also attempts to be very precise in its "strictly English" language, precise use of English is not unique to science. Indeed, a major task, goal, and benefit to be gained in every liberal arts and professional degree program should be facility in reading, writing and speaking precisely. Savor the nuance, learn to put words together to express exactly your thoughts (doing so sharpens your thinking at the same time). And
also enjoy your ability to use English precisely. Numbers, arithmetic, and algebra are essential to science, but we use these skills in many daily activities (such as, commerce, quality point indices, earned run averages, and miles per gallon). Precise description of observations in nature requires the use of numbers [how much (little), how big (small), how far (close) and so on]. The expression of relationships between the numbers brings in arithmetic, then algebra, then calculus and on and on. As the relationships become more complicated so does the mathematics. The language problems lie, of course, in the nature of nature. The more we pry and probe, the more we find that what at first seemed simple is actually complex. We cannot ignore that complexity if we hope to achieve understanding. So we are forced to invent the technical languages to deal with the complexities.

Second, the ideas in the sciences are often strange and each new concept builds on the last concept, itself not yet quite familiar and mastered. The strangeness is frightening; but earlier in our lives each of us accepted strangeness as the norm and we actively sought to explore everything (consider the infant and each new stage of her/his mobility: crawling, toddling, climbing). The mastery of strange concepts requires effort and attention, practice, trial and error, and mental discipline. All the divisions of the liberal arts and the so-called vocational areas share these requirements.

Third, the paraphernalia of science is strange and often mysterious. Remember, the business of science is to observe and describe. Long ago scientists learned that our own senses and powers of manipulation are inadequate to make the observations with enough sensitivity. For example: we need a microscope to see a cell or a bacterium; we need a counter to detect radioactivity; we need telescopes to study
the stars and planets; instruments to detect the sounds of whales, the electrical activity of the brain, or minute traces of toxic substances which might be present in water and food. If we can recapture the sense of curiosity and urge for exploration of childhood, we can overcome the intimidation of strange apparatus.

Fourth, many of us learned in childhood to be scared of science and mathematics. False generalizations such as "Boys are better in math than girls," "Girls don't like science and all that technical stuff," "Real men don't bother with all that 'smart' stuff" may not be explicit, but they are often implied. Teachers who themselves are inexperienced in science, who are uncomfortable and insecure with science concepts and experiments, are expected to teach them anyway. Their pupils will pick up some of their attitudes along with some of the science.

So many of you will come to science courses with a burden of fears. You will expect them to be incomprehensible; you will expect to dislike them; and you will avoid studying the subjects while you are in them (all fairly understandable and natural reactions). The result will be that you will be right; you will confirm your opinion that science courses are fearsome and incomprehensible.

But you have an alternative: You can work diligently from the first day's class; you can master each day's work on that day; you can discover that the second day's work is easier to master if you have already mastered the first day's work; you can discover that mastering a course is a great satisfaction; and perhaps you will even discover that you like the course and prove that your fears were unnecessary.
SUMMING UP

As we come to the close of the 20th century, we easily believe that science is an invention of the twentieth century. But science, the observation and description of nature, is an ancient pursuit of humankind. Although science in the 1980's has much greater powers for understanding nature than it had in ancient times, science still does not have the power to provide absolute answers. The sciences are creations of the human mind. Like the other liberal arts, the sciences are elegant efforts to view and understand ourselves and our world.

Examine the elegance and beauty of a crystal of sugar or salt. Observe the beauty of form and efficiency of function in a cell or an organism. Marvel at the grandeur of the ideas that seek to explain the formation of the continents and the feebleness of our understanding of earthquakes, tornadoes, volcanoes, hurricanes and other expressions of nature's incredibly strong forces. Wonder at the range of human emotions and the versatility of human behavior. You can explore these phenomena and many more in the broad range of courses offered in the sciences at Brockport: the biological or life sciences (botany and zoology), the earth sciences (geology, meteorology, and oceanography), astronomy, chemistry, and physics, geography and psychology which share broad borders with the social sciences, mathematics (some would say the queen of sciences), and computer science. You can study nature from the reaches of outer space to the details of the atom's nucleus; from the simple elegance of pure numbers to the complex beauty of human behavior.

Every person begins life as an experimenter — if you will, as a scientist — whose consuming interest is to explore everything in the world around her/him. From the moment of birth the infant's attitude is "try it and see if it
works" or "try it and see how it works." By this means an infant learns to suck, to turn over, to move about, to talk, and to do all complex tasks we as adults now take for granted. By practice, the infant fixes her/his learning and perfects each newly acquired skill, one word or one step at a time. Become an experimenter again in your college education:

Turn on your curiosity.
Hold back your fears of the unfamiliar.
Turn on your mind.
Learn new concepts and skills.
Practice and perfect what you are learning.

But above all, explore and ENJOY!

My recent reading of the book and articles listed in the footnotes, Philip Handler's editorial, "Public Doubts About Science", Science, Vol. 208, (June 6, 1980), p. 1093, and the preliminary draft of an article for this volume by Professor K.T. Finley have stimulated the development of some of my ideas for this essay.
WHY STUDY THE SOCIAL SCIENCES?

Most of us consider ourselves fairly well-informed about the society in which we live. We have opinions and beliefs about why divorce rates are high, a college student smokes pot, some people have more money than others, and criminals steal. Some of our understandings come from tradition, the accepted ways of viewing the world. Others we say come from authority figures who convince us they are experts. Others come from common sense.

While we may consider ourselves experts on society, in fact our ordinary views of the society often are illusions. The fish apparently does not pay attention to the water until he is out of it.

Neither are human beings inclined to think deeply about the nature of the social world which is their environment. Our beliefs may be illusions
because they are incomplete understandings, oversimplified answers which give us an easy satisfaction, but do not allow us to comprehend complexities. We may accept distorted views of reality because the distortion allows us to justify our own existence and to feel good about our actions.

The social sciences bring new tools with which to check out our ideas and to better understand human society. The shifts in thinking, for example, about why people become criminals -- thieves, thugs, and murderers -- is illustrative. In the 18th century it was believed that criminals are possessed by the devil. In the late 19th century, it became accepted that criminals inherit their criminality and possess distinctive physical traits, such as bulbous noses, cauliflower ears, and receding hairlines. By the twentieth-century, however, social science was able to discover that the process by which criminals become criminal is a social process, in which the person may associate with others who are themselves criminals (pot smokers, for example) or learn from others who accept values considered deviant (how to cheat on income tax reports or college examinations, perhaps). Thus, the social sciences have progressed in part by examining the validity of everyday beliefs, one by one, questioning them and replacing them where necessary. While even social scientific understandings have their own illusions, over the last century there have been a series of major breakthroughs which have enabled us to perceive the complexities of human existence more clearly. One of the most important is the idea that human behavior is strongly influenced by the society, and does not merely result from biological urges, climatic conditions, or spirits and devils. This awareness is a major contribution of the social sciences to our understanding of mankind.

At one time we relied almost totally upon tradition, common sense, authority, or intuition to understand our social world. An important dif-
ference between social science and these more common sources of knowledge is that social science provides a method for checking and testing ideas through empirical research. The process of conducting social science, as all science, consists of making theories (generalizations) about social life, stating the theories in such a way that they can be investigated, and then making observations of the world to see if the theories are pertinent to what really happens.

A wide range of techniques for the observation have been developed: watching a group while participating in it, interviewing people, examining statistical data, making case studies, conducting experiments or surveys, and constructing simulated models, among others. As a result of its emphasis upon empirical testing of ideas about the social world, social science has illuminated things we did not know about previously — other societies in distant times and places, for example; or that we knew about distortedly — the experiences of social classes and cultures different from ours; or that we ignored — the network of invisible rules and
institutions that influence how we act and think. While each of the disciplines within the social sciences has its own unique interests and methods, they all share a concern with the social, with the accumulation of a verified knowledge base, and with the testing of ideas through social research.

The term "social sciences" includes the separate disciplines of anthropology, political science, economics, and sociology. In addition, there are several disciplines which often approach questions as a study in social science even though their disciplines also relate to other areas. These disciplines include history, geography, and psychology. Finally, programs such as African and Afro-American Studies, Global Studies, and Women's Studies draw heavily upon all the social science disciplines. In closing, a brief description of each discipline reveals the broad range of subjects which the social sciences touch.

ANTHROPOLOGY

Anthropologists have always been interested in the origin of human beings, and this interest has led to the development of physical anthropology which seeks to understand human evolution as revealed by analysis of human fossil remains. In addition, physical anthropologists deal with the variations in physical traits that represent human adaptation to particular environments.

Cultural anthropology traditionally has dealt with the nature of preliterate cultures, looking at the interrelationships of customs, social institutions, kinship systems, art, economies and political systems, and material artifacts. It emphasizes that culture is a powerful determinant of human behavior. More recently, anthropologists have turned their attention to contemporary societies, applying field methods of research to their study of modern subgroups.
They have shown that by understanding how other societies solve basic problems, we are better able to understand our own society.

**SOCIOMETRY**

Sociology and anthropology overlap at many points. Sociology is the study of society, the groups within society, and their effects on people. It is concerned with the sources of social order and of social conflict. Why do most people cooperate most of the time, but why is there also oppression, domination, and coercion? Sociology looks at the social patterns which shape the social environment within which people must behave. It examines the basic social institutions such as the family, political system, education, the economic order, the system of social inequality, and asks, how are individuals affected by these institutions, how are the institutions maintained over time, and how and why do they change? In answering the question, it studies a wide range of groups -- prisons, social classes, bureaucracies, elites, lovers, for example -- with the goal of understanding what makes social life possible, and how it works.

**HISTORY**

History is the systematic study of past sequences of related events. In that study, it seeks to understand the meaningful relationships among the events. A full understanding of the present is impossible without an understanding of the past. Particularly do we need historical awareness if we wish to discuss topics of current relevance with fullest understanding. Debates about international relations, urbanization, class inequalities, changing sex roles, population problems, and the rise of multinational corporations, for example, lack depth without an historical awareness.
Political science involves the study of politics, the process by which societies make binding (backed by force of law) decisions. Political scientists study the form and processes of the formal governmental structures such as Congress, the Courts, and the Presidency. They also examine parties and interest groups, voting behavior, ideology, and the varied factors that motivate elected and appointed officials. Political scientists employ the research tools of the behavioral sciences to understand political behavior within and between nations.

ECONOMICS

Economists are interested in the exchange of goods, that is, how people get what other people have. They look at three processes; the production, distribution, and consumption of goods and services. In addition, they are interested in understanding how various economic systems work, and to do so have used such concepts as supply and demand, savings and investments, and cost and price.
Section III

More Than Making It: Getting The Most Out Of College
WHERE AM I GOING; HOW DO I GET THERE? SOME THOUGHTS ON ACADEMIC PLANNING

State University College at Brockport. The brochures told you that it was a medium-sized liberal arts college located approximately eighteen miles west of downtown Rochester. And, you were told about our many fine programs, excellent facilities, and quality faculty. Believe it or not, all of these claims are true, and it is not unreasonable that we didn't bring up the subject of our region's winter weather.

A few months ago you graduated from high school. If someone asked you what your diploma meant you could have replied that it led to college admission. Of course, I trust that your four years in high school meant much more in terms of your social, cultural, and intellectual development.

In three to four years from now, you may be receiving your degree from Brockport. If some-
one repeats the question posed earlier, I will be disappointed if your responses are confined to, "I have been offered a job with Megabucks Corporation," or "I have been accepted into a graduate program at Imposing University." My hope is that you will say that you have received a liberal education. On second thought, received may be the wrong word because it implies that something was given to you. Let me use the word obtained, for it suggests a more active role on your part. And, the foundation of your activity must be planning. For without planning, you will not be able to make the best use of Brockport's assets. You do not want to get "too soon old and too late smart." You do not want to come to the realization at graduation time that you received a degree, but did not get an education.

I. Required Courses

The present registration system for new students represents Brockport's attempt to ensure that you take the proper first steps towards academic success. However, planning your education from this point forward will be your responsibility. To use an analogy drawn from the world of sports, you can think of your DLE instructor - who doubles as a general advisor - and your major advisor (when you declare a major) as coaches who will counsel and assist; but, they can't play the game for you!

You already have been exposed to the excellent advice contained in Roger Weir's article, "The Liberal Arts: Preparation for a Career." The General Education requirements, which will account for 50 percent of your program during your first two years, have been designed to develop the skills that Dr. Weir called to your attention: communication skills of reading, writing, and speaking; the ability to discover, organize, and communicate information (effective research); and critical reasoning that allows an understanding of various sides of a controversial issue. Each of these skills is an
essential component of a liberal education. To Dr. Weir's list I would add two other elements. The first - an essential in the contemporary world - is an understanding of numbers. The second is the development of aesthetic values through an involvement in the Fine Arts.

While you have been placed in the appropriate Communication Skills and Quantitative Skills courses, as well as Breadth Component courses that you have elected, the planning of the remainder of your education will depend more heavily upon your personal initiative and your willingness to use the resources at your disposal.

II. Planning Your Program

You should ask yourself, "Where do I go from here?" If your answer is, "I don't know!" do not be alarmed. Unless you intend to major in the Natural Science/Mathematics, Fine Arts, or professional areas such as Business Administration, Health Sciences, Nursing, or Social Work, you will find that the academic majors are very flexible and do not impose many prerequisites or corequisites. Furthermore, most students who opt for the scientific and professional areas usually have made up their minds before they get to college. If you have chosen one of the majors that I have mentioned, the advice in this article still applies to you. However, I am alerting you to the need to pay close attention to major requirements while planning the other aspects of your liberal education.

Whether you are undecided or have declared a major, your future choice of Breadth Courses can provide the introduction to various fields of knowledge, and also give you the prerequisites that will permit enrollment in upper-division courses that you may wish to take. Put differently, the Breadth courses can be used to give you "flexibility" in choosing a major, a second major, a minor. Careful choice can allow you to
shift academic direction with a minimum of inconvenience, and/or to develop skills that will make you more marketable when you graduate.

Before giving you a few examples to clarify the points I have attempted to make, you should know that my experience is based upon advising students who have concentrated in the Social Sciences, and most often in Political Science. I am also a general advisor, where I regularly advise more than twenty students whose academic interests span the full range of programs offered at Brockport. While I am most familiar with the Social Sciences, I believe that the examples that I use represent good advice to any student.

Example 1 is the undecided student who expresses a general interest in the Social Sciences, with a leaning towards Sociology and Political Science. I would advise this student to choose a Breadth Course from each of those departments, thereby meeting both the Breadth component requirement and a major requirement in each of the disciplines. The student will have ample opportunity in the course of the first two years to take additional work in either or both fields and to explore other areas of the Social Sciences: Anthropology, African and Afro-American Studies, and History.

Example 2 is the student who has chosen a major, and for purposes of discussion I will identify our student as a Political Science major. The advice given to this student will be similar to the advice given to our first example. However, I would map out a two-year proposal for Political Science courses to ensure that departmental "required" courses were taken within the appropriate time frame. Of course, the decision to major in an area is not set in stone, and many "declared" majors change their mind. In fact, you and your advisor should give serious consideration to planning electives in other areas that would complement your major and might be developed into a second major or a minor.

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Many of my present and former students have combined work in Political Science and Economics or Political Science and Speech Communications. Economics is politics, and politics is economics! Students with a good background in economics are attractive to both industry and to government. And, the communications industry needs young men and women who understand the national and international political arenas. It should come as no surprise that the international business community is seeking individuals who combine a business/economics background with fluency in a foreign language. To be even more specific, Hispanic Americans are on the verge of becoming the largest identifiable minority group in the United States. The need for people who are bilingual is enormous, and Spanish majors or minors will be in heavy demand.

The key is flexibility, or as one of my colleagues always asks of the students who tell him that they are going to go to law school, "What is plan B?" The four years at Brockport can provide you with a plan B or a plan C. Your interests may change during your third or fourth year, but intelligent curriculum planning should provide you with the communications, mathematical, analytical, research, ethical, aesthetic, and interpersonal skills we associate with a liberally educated person, while at the same time allowing you the option to choose from a number of career paths.

At this point you may be ready to ask whether or not the 6-credit communication course sequence is adequate to develop the speaking and writing skills that this chapter keeps harping upon. For many of you, my response would be, "NO!" Although all of the breadth courses are designed to give you writing and discussion opportunities, you may wish to give serious consideration to elective courses in creative writing, advanced composition, business writing, argumentation and debate, and discussion. My argument is the same with respect to the general education math requirement. In general I suggest to all
of my advisees that they take a course in statistics and/or computer science. Most people are not going to be statisticians or computer programmers; but, most managerial positions will require some comprehension of statistics, and it would be advantageous to know what a computer can do for you and be able to communicate effectively with the computer programmers.

Every semester provides an opportunity to make intelligent use of your electives. Through effective planning, electives can be used: to supplement a major, to pursue a second major or minor, to further develop basic mathematical or communication skills, to develop a physical skill, to master a foreign language, to study abroad or off-campus, or to gain some practical experience (BCEP or Para-Professional or other internship program).

III. Options and Opportunities

SUNY offers an amazing array of programs around the world. You can spend a semester or a year abroad at a cost that will be equivalent to or only slightly more than your costs at Brockport.
The same holds true for the Washington Semester Program. Can you picture yourself in Paris, or London, or Washington, or Mexico? What a marvelous opportunity you have to become totally immersed in another culture or to be an active participant in the national political game. Likewise, various local internships provide practical experience on a less than full-time basis. Turn your dreams into realities by early planning and the achievement of the required grade point average to qualify for these programs.

While this article has stressed reading, writing, research, and mathematical skills, it also is important to focus some of your attention on the Fine Arts and Physical Education. Brockport gives you the opportunity to develop your appreciation and participation in the Fine Arts. The Breadth Component requirement of the General Education program guarantees your exposure to at least two of the four Fine Arts areas which include Art, Dance, Music, and Theatre. Hopefully, this exposure will lead to additional courses that will enrich your life, now and in the future. Frankly, I believe that most students will derive great benefit from classes that involve a performance component such as drawing, acting, musical performance, dance, set design, or photography.

In the realm of Physical Education, you have the opportunity to develop athletic talents that will last a lifetime. For example, why wait until after you graduate and shell out $10 to $15 per half hour for tennis lessons, when you can take a course or two in tennis. A glance at the course offerings in Physical Education reveals a veritable smorgasbord of performance courses that can be part of the package deal that comes with the payment of tuition and fees.

Obviously, not all courses do or should involve library research. Some courses lend themselves best to short-answer exams. But, if you are going to be one of those students who carefully
avoids courses that require research papers and essay exams, then you are cheating yourself! If you want to sit in class, take notes, and simply spit back information on exams, without the opportunity for critical analysis, you are cheating yourself! If you do not want to be able to determine if the figures lie—remember, liars can figure—you are cheating yourself! And, if you assume that simply meeting the basic requirements for a B.A. or B.S. degree will be the magic carpet to success, you are kidding yourself!

There are plenty of college graduates who are working in routine jobs and some have no job at all. If your application for a job is poorly written or full of grammatical errors, you will not be invited for an interview. If you get to the interview stage and the dialogue is anything like the following example, you are in trouble!
Interviewer: Ms. Jones, what sparked your interest in our company?

Jones: Well...you know...it's like...a...I've always liked...you know...advertising. It's a...an interesting field...like it's fascinating.

In the case of the inarticulate Ms. Jones, we can assume that a number of items on her resume had provided the opportunity for the interview. Unfortunately, in her case, silence would have been golden. But what happens to the student whose record indicates no attempt to develop important skills, or suggests that beyond the absolute minimum requirements, the pursuit of an "education" was the pursuit of the easiest path to the degree, strewn with as many "gut" courses as possible? The obvious answer is that the job market and the prospects of a culturally enriched life will be a bleak one for that type of "scholar."

IV. How Is All This Possible?

I assume that you have gotten my message, and you may be wondering how I expect you to broaden your mind and develop essential skills, aesthetic awareness, and physical talents, within the framework of four years at Brockport. The mathematics is simple.

1. The General Education requirements will account for only 36 to 42 of your 120 hours necessary for graduation. Some of these hours will count towards your major, second major, minor, or corequisites for your major.

2. Majors at Brockport vary in the number of hours required, ranging from 30 hours to 48 hours including corequisites. Most majors fall into the 30-36 hour range.

3. The General Education and Major requirements combined allow almost every student many hours that can be used for electives. When you con-
sider that the only General Education courses that are mandated are in the Communication Skills and Quantitative Skills areas, even the GE hours could be considered electives.

4. Even if you opt for a major that requires the maximum number of hours, and assuming that you are the average student and will take 9 hours in communications and math skills, you still will have 64 hours of electives. And for most students, the total will be between 75 and 81 hours.

Now that you know that my outline for planning a liberal education is achievable at Brockport, you need to become aware of the resources available to help you plan your program. I urge you to make use of these resources.

V. Resources

The foundation of program planning is your own willingness to take personal responsibility for getting the most out of your Brockport experience. This means that you should become familiar with requirements, program options, and resources by carefully reading the publications prepared by the College. It is a constant source of amazement to me that many students are ignorant about requirements, opportunities, and services.

Your basic familiarity with the terrain should lead to a more constructive relationship with your academic advisor. I believe that an ongoing association with your advisor is the foundation of educational planning. The DLE facilitates the creation of the student faculty relationship, and there is no reason that this contact should terminate after you have chosen a major and been assigned an advisor from your major department. Your DLE mentor can be a friend who will not interfere with the advice given by your official advisor, but who can be an invaluable person with whom you can discuss
the whole range of academic and non-academic issues that you will deal with over the next four years.

There will be advisor assignments that do not work out for a variety of reasons. Remember, you are free to seek a change in advisors within a department, and you have the total freedom to develop an advisee-advisor relationship with any member of the faculty on this campus. Some of the closest and longest-lasting associations are created as a result of a classroom, student activity, or work-study situation.

The Center for Student Academic Services ("The Center" for short) is another major resource at your disposal. It contains a career library, and SIGI (System for Interactive Guidance and Information), a computer-assisted program to help you match your interests and talents with the requirements of almost any conceivable career. In addition to career guidance and planning, The Center offers a wide variety of programs to assist a student with the development of reading, writing, mathematical, and test-taking skills. Remember, if you do not develop a reasonable mastery of the basic skills, you cannot take advantage of a liberal education.

Brockport's curriculum is designed to provide you with the basic ingredients for a liberal education. You can reach your objectives through a variety of courses and experiences that should assist you to grow as an individual. The key word is flexibility. A liberal education should prepare you for a lifetime of learning, enjoyment, and career mobility.

The resources are here: faculty, staff, and curriculum. Our gates are wide open. It is up to you to turn the keys that will open the gates of your mind.
In the early 1960's the IBM Corporation posted signs in offices and work areas encouraging employees to use their minds more effectively. The signs simply contained one word: "THINK." Actually, the instruction to think is not a new one. Our teachers have asked us to think since we entered school. It is assumed that everyone knows how to think, and seldom is any instruction on the matter offered. After all, we all think about all kinds of problems, ideas, and plans each day.

I believe that few of us actually know how to think as well as we could. Let me illustrate by using an analogy. I have managed to walk around for years without falling or bumping into things. During childhood I played baseball, basketball, and touch football with the neighborhood kids. Even though I was never athletic enough to make a varsity team in high school, I
felt I was as agile as most people. A few years ago I began to doubt that belief while taking a ski lesson from an instructor who was obviously quite athletic. The ski instructor told me that I should shift my weight forward without bending over and that I should be able to FEEL the correctness of that movement. I found the movement next to impossible...and it felt more awkward than the incorrect technique I had been using prior to my lesson. Then the light dawned! I could move as well as most people, but I did not know enough about movement to improve my skills.

A difference between this ski instructor and me was that she had a set of skills—knowledge about how to move—that I did not. She probably acquired these skills while quite young, and was not even aware of possessing any particular knowledge. She could not understand why I could not just FEEL that what I was doing was wrong, or why I could not move as she instructed me. For that matter, I had not understood it either. I had just assumed my problems were another example of my poorer athletic ability.

I would argue that we make the same mistake when trying to understand our thinking abilities. Each of us assumes that we know how to think, because we think (just as we must know how to move, because we move). Talking is such a skill. Very few of us could successfully give instructions on how to talk (or even describe how we are able to talk). The vocal apparatus just works for us. But what if we want to improve our speaking voices or become accomplished singers? Then we have to analyze how the voice works and carefully train it for improvement. It is the same with skiing or with thinking. To improve a skill, we must explicitly understand that skill. But our teachers have almost always assumed we knew how to think. Consequently they demanded thought of us without bothering to teach us to think. As a result,
those students who seemed to develop good thinking skills without needing to be taught them have done well. The rest of us survived as best we could.

To carry my analogy to its conclusion, I have to point out that there are among us some people who appear to have more athletic talent than others. There are also individuals who have more native intelligence than others. Where does this leave the rest of us? I DID learn how to ski. What had limited me was not a lack of potential. I had been limited by not having developed my potential. It took me longer to learn and required more careful effort than it did some of my more athletic friends. I am still not an Olympic racer, but I do ski adequately. Likewise, we can learn to think better, if we recognize the need. We must learn to think about thinking, and work carefully and diligently to develop thinking skills.

The principle business of a college is to encourage students to develop their individual abilities to think. Employers seek college graduates who can communicate effectively and who can use the powers of thought to address an ever changing range of situations and problems. However, students often prefer not to have to work at thinking. As Don Marquis observed, "If you make people think they're thinking, they'll love you. If you really make them think, they'll hate you...." Could it be that some student's reluctance to engage in rigorous thought is a reflection upon the undeveloped state of their thinking potential?

Thinking can be fun. Thinking can offer rewards by virtue of providing the basis for better decisions that influence our everyday lives. Well disciplined thought can add rewards and satisfaction to our careers. But this valued thinking ability does not just soak in with the rain. As a matter of fact, no college faculty can make any student think. The decision and the responsibility belongs to each student.
Once the student is committed to learning to think, the college provides many useful resources to meet that goal.

The purpose of this chapter is to share with you a few ideas that my students have found helpful in thinking about thinking. Since many books have been written on the subject, it is obvious that within the brief space of this chapter I can only cover a fraction of what is known about thinking. Hopefully you will find some new ideas here and you will challenge your instructors to aid you in learning to think better.

What is Thinking

In his book, The Adventure of Learning in College, Roger Garrison states that "to think is to exercise the powers of judgment, conception, or inference; to reflect for the purpose of reaching a conclusion; to reason." He states further, that to think effectively one must develop some specific abilities:

Gather and interpret relevant information
Evaluate the adequacy of the information
Identify unstated assumptions
Identify reasonable relationships between ideas
Evaluate arguments
Evaluate degrees of probability in conclusions
Form warranted conclusions
Use language (words or numbers) accurately to communicate all the above

The acquisition of these abilities should present quite a challenge to any student. Remember, to improve a skill, we have to analyze it. What is Garrison telling us about thinking? Go through his list and circle the action words. Then look carefully at what action is required.

As an example, to identify is to search through many possible choices for a particular one. Suppose you met a student but could not remember her name. If you had a yearbook with the
pictures of all of the students, you could search through the pictures until you identified her picture. When you identify someone or something the following three conditions usually exist:

a. you must reject choices as well as accept them (not every picture is of the person you are looking for),

b. you may not know exactly what you are looking for (who can remember exactly what a casual acquaintance looks like?),

c. what you find may not look exactly like what you thought you were looking for (are yearbook photos ever that good?).

With this perspective in mind, re-examine those thinking abilities in which "identify" is circled. Where do we find the "unstated assumptions" or the "relationships between ideas"? If the assumptions are unstated, they have to be discovered. Unless someone has already developed the relationships, they also must be discovered. Ouch!! It is likely that neither of the things we must identify already exists. They must be discovered by the individual thinker. For instance, we may wish to examine the following two ideas:

Idea 1. A person is most likely to do those things he is rewarded for doing.

Idea 2. People often do things without appearing to be rewarded.

What are some "reasonable" relationships between these two ideas? What are some "unreasonable" relationships? Is the relationship that "rewards don't really work because Idea 2 disproves Idea 1" a reasonable one?

What are the unstated assumptions? One such assumption is that we can identify the relationship between reward and behavior. Since this is an assumption, it might not be true. If the assumption could be proven to be false, then
neither Idea 1 nor Idea 2 could be accepted as valid generalizations. These are the kinds of questions the thinker must ask while identifying reasonable relationships and unstated assumptions. I should point out that it is this critical thinking skill that your future employers will expect you to be able to perform. Developing these skills will contribute to your future success.

Obviously, I am not going to teach you everything about identifying relationships and assumptions here. However, improving these skills is exactly what your college education at Brockport is all about. You must challenge your instructors to help you in this task. You also should analyze the rest of the circled terms in Garrison's list (gather, interpret, evaluate, form, use, and communicate) in the same manner that I have looked at the term "identify."

Discovery and the Prepared Mind

One conclusion that can be drawn from the analysis of thinking skills is that thinking is essentially the act of manipulating and rearranging ideas and information. What is the source of the ideas and information that we think about? Jerome Bruner, an eminent psychologist, contends that creative thought can only take place in a well-prepared mind. "Discovery, whether by a schoolboy going it on his own or by a scientist cultivating the growing edge of his field, is in essence a matter of rearranging or transforming evidence in such a way that one is enabled to go beyond the evidence...to additional new insights."² Bruner's "prepared mind" is a storehouse of evidence. Likewise, the thinking abilities that Garrison identified depend upon thinkers having "ideas," "information," "assumptions," "arguments," and "conclusions" at their disposal. In short, we cannot possibly think without knowing enough information to think about.
Before Michelangelo could begin his monumental fresco on the ceiling of the Sistine Chapel he had to know what the techniques of painting could yield; he had to know the biblical stories from which his creation was drawn; he had to know the intricate relationships between the subtleties of human anatomy and the delicate workings of light and shadow; he had to understand balance, color, composition, and emotion. Only then could his genius create a masterwork of art. Although activities such as a student's study of the economic impact of the Civil War might seem commonplace by comparison, the same rules of preparation apply. Given the critical role of having information readily available in memory, the next section of this chapter will examine some ways to improve the preparation for thinking.

Learning For Later Remembering

Frequently students complain that they have learned the material, they know it, but just cannot remember it when asked in class or on a test. The effort they expended in learning is wasted. Learning is only useful if you can reliably remember what was learned. But the obvious is often overlooked. The way information is learned (the way it is stored) can influence how easily it can be remembered (taken out of storage). Alas, one of the most common storage strategies for classroom learning is also one that creates problems for later memory and application of material to thinking.

Lists, and Other Ordered Sequences

How many lists have you learned in the past 12 years? Lists of names, dates, important concepts, chemical elements, formulas, and other key terms? Making a list and committing it to memory has been a useful learning device for centuries. A list can be defined as an ordered arrangement of items. The order stays the same
each time the list is rehearsed. The boundaries of knowledge defined by the list are marked by the beginning item and the ending item. Using this definition as a starting point, we can discover that we have learned more lists than we suspected.

A textbook can be a list. It is an ordered arrangement of items. If we study by rereading (or going from the front of the chapter to the back) over and over again, then the order stays the same each time the information is rehearsed. And the boundaries are defined by "Here we go again" and "Boy, I thought it would never end."

Likewise, a lecture (or series of classes) can be a list. The order is not determined by the order of marks on a page, but by the order of presentation of ideas in time. We rehearse the order to the extent that we go over our notes from front to back each time we study them. In fact, since all experience occurs in time, all experience potentially can be stored in list form. "She said..., then he said..., then she did..., then he..."

Anyone who has employed a list as a device for remembering material can testify that lists are useful. But they also have limits and disadvantages. An important limitation of listed information involves the lack of sophisticated relationships among elements in the list. For instance, a student can memorize the names of the 12 cranial nerves. The relationships inherent in the list are which nerve is before and which nerve is after each other nerve on the list. The ninth cranial nerve, the Glossopharyngeal, is preceded in the list by the Auditory nerve and followed by the Vagus nerve. That is not much information. Which cranial nerves are sensory? Which control movement? Where does each start? Where does each terminate? What drugs, chemicals, and hormones affect the performance of each of the nerves? The list is organized merely to aid in remembering the 12 names, and not much more.
Another major disadvantage of a list lies in a peculiarity in how lists are remembered. Try singing a favorite song starting with the third word without even thinking the first two words. The front of the list is essential for remembering the rest of the list. The rest of the list is broken into "chunks." If you try to recite the alphabet backwards, chunks emerge. "XYZ" is my final chunk, then "UVW," "RST," "MNOPQ," etc. I can identify the chunks because I can only remember those letters that come next by going to the first letter of the chunk and reciting the rest. What happens when you can't remember how a list starts? And you can't remember the start of any of the chunks? That's right. You forget the entire list. The list is still in memory, but you cannot get to it without the entry word. Not too useful!

Much of the material that students pack away when studying for tests is in tightly memorized lists. As soon as they lose the key words for their lists (hopefully not until after their tests), they lose ability to use the learned material. Even if they do finally remember how
the list begins, by the time they retrieve the information they needed they may have forgotten why they needed it.

The Network as an Alternative to the List

Most of the information that is used every day is not stored in lists. Instead, we use what amounts to a network of complex interrelations. If I am having trouble remembering the capital city of Pennsylvania I don't have to recite a memorized list of states and capitals. I can remember that the city is on the Penn Turnpike, near Hershey...and near Three Mile Island, there is a river going through it, the bus from Philly to Pittsburgh stops there...and so on. The more different associations I have, the more likely I will remember the answer.

The information network in memory has obvious advantages over a list. The access to any particular piece of information is NOT controlled by one or two key words. Any of the many pathways in the network that connect to the item to be remembered can allow access to that information. We all have had the experience of being almost able to remember something. Each time we get near remembering, we run into the same block. In such a situation, the information network allows an effective use of memory. Instead of constantly trying to remember using the same pathway, try different ones. For instance, when trying to remember the name of a person met a week ago, don't be trapped by thinking repeatedly that their name started with "Ma". Rather than treating the name like part of a list, use other pathways by recalling the person's occupation, topics discussed in conversation with the person, or the names of any mutual friends. Any one of these pieces of information may serve as a link to the person's name. (Actually, the name may have been "Nancy" and the "Ma" was a mistaken clue).
A second advantage of storing information in networks rather than lists involves the wealth of associations that networks provide the thinker. You will recall that Bruner's definition of creative thought involved the rearranging and transforming of ideas. You will also recall that the only relationships inherent in a list are those that deal with the order of the items. Every item in a network relates to a variety of other items, and consequently a seemingly infinite number of possible arrangements and transformations of associations become possible. As an example, suppose an economist wants to understand the effects of consumer behavior upon economic systems. She must not only have knowledge of the principles that influence economic systems, and knowledge of psychological principles, but there must be some associations bridging these two disciplines. Obviously a list of economic principles and a list of psychological principles would not serve as well as a shared network of information.

Fostering the Growth of Information Networks

Generally speaking, any study technique that forces the student to encounter an item of information from only one perspective will encourage list building and discourage use of networks. Reading the assignment repeatedly, reviewing lecture notes by reading them over and over, and listening to audio tapes of lectures are common practices that can force list-like learning. Making marginal notes in the textbook and then integrating the textbook material with class notes will help build networks. Identifying the key concepts in the course and outlining how they relate to one another will also discourage automatic list making. I will leave as an exercise for the student the task of identifying several different study strategies and then predicting whether those strategies would be more likely to produce lists or networks of information in memory.
How Much Learning is Enough? (or how do you know if you know it?)

Let's return to the problem of the student who complains of having learned the material but cannot remember it when asked in class or on a test. I have already suggested that one source of the problem may be that the student learned the information from only one perspective. When asked to use the information later, his memory fails because he cannot think of the right cue to begin the list. Another explanation may relate to a failure to understand the various "levels of knowing."

Psychologists discuss the various levels of learning in terms of how much external information is necessary to act as a prompt or clue for remembering. Suppose a television station wants to know how well viewers remember their TV commercials from a particular evening. They could telephone viewers of their channel and ask them to remember as many commercials as they can from the previous evening. This is a free recall task. The viewer has no hints to help him remember. That is, his recall is free of any prompts.

Another technique used for this kind of survey is prompted recall. Just as with free recall, the viewer is asked to remember commercials, but this time some prompts are added. The question put to TV viewers is, "What commercials did you see last night for hair care products?" The "hair care products" is a prompt or clue to aid the viewer's memory. Viewers will remember more commercials when prompted recall is used than when free recall is. This is because free recall is much more difficult.

A third method for the TV commercial survey relies on the viewers' recognition of products when presented a list of possibilities. The question is asked in this form: "Which of the following products were advertised on TV last night? Gillette Foamy, Ford Mustang, Hammerhill"
papers, Kleenex tissues, or Kellogg's Corn Flakes." This method makes it easiest for the viewer to remember because the task only requires identifying items from the list.

Understanding these three levels of remembering can provide some insight into knowing how much learning is enough. As you know, the lowest level of knowing relies on recognition for remembering. For example, a student studying physics might read that a calorie is the amount of heat energy required to raise the temperature of one gram of water one centigrade degree and that a BTU (British Thermal Unit) is the amount of heat energy required to raise the temperature of one pound of water one Fahrenheit degree. If someone were to say, "Did you know that a calorie is the amount...," the student would say, "Sure, I just read that." However, if that same student is asked for definitions of a calorie and a BTU later, he may not know. It is easy to be fooled by the amount of material that looks or sounds "familiar." When the definition for the term BTU appears in his study notes, it may indeed look familiar. The student recognizes it. Does that mean he knows it? Possibly not!

A second level of knowing required prompted recall for memory. Recall indicates that the student can remember (recall) the information when the information is not present. (With recognition, the information must be present to be "recognized"). However, with prompted recall, some cue or prompt is all that is necessary to stimulate recall. Although you may not have the slightest idea who Roger Garrison is, you might if I write: "as Roger Garrison indicated earlier, in his eight abilities involved in effective thinking..." When studying, the student again is tricked into feeling he knows more content than he actually can remember. In the context of the textbook, the cues are all present to prompt recall of terms, definitions, and major concepts. Yet if the instructor asks the question from a different
point of view—no memory. Panic! And the resulting pleas: "Could you ask the question a different way?" "Ah, give us a hint?" The pleas are all attempts to establish an effective prompt for the lost information.

When free recall is possible, no prompt or clue is necessary to remember the information. This level of knowing is necessary when the student is to be faced with essay tests, class discussions, or other situations when there are not likely to be prompts available for specific information. Prompted recall might be adequate when studying for a multiple choice test, although free recall would allow the student more flexibility. (When writing test questions, instructors often intentionally vary the language and situations from those used in the textbook.)

It is worth noting that recognition memory seldom is useful. Information that is only slightly different (but wrong) may look as familiar as the correct information.

But What About Thinking?

Early in the chapter I did suggest that students can learn to improve their thinking skills, and since then I've talked mostly about memory. The reason, of course, is that by improving the preparation for thinking, by improving memory, the student also will improve thinking ability. Are we ready to examine thinking yet? Almost.

Benjamin Bloom has categorized what he feels to be the various thinking skills, and he has ordered these categories from the least demanding to the most complex (see Table 1). If you are already practicing suggestions from this chapter, you will compare Bloom's ideas with those of Bruner and Garrison earlier in the chapter. Such an examination should reveal some basic similarities among these three sources. All of them agree that thinking involves manipu-
TABLE 1
Bloom's Categories for Thinking Skills

<table>
<thead>
<tr>
<th>Least demanding</th>
<th>1. Knowledge</th>
<th>recollecting specific information.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Comprehension</td>
<td>summarizing and restating material in own words.</td>
</tr>
<tr>
<td></td>
<td>3. Application</td>
<td>using information in a situation different from the one in which it was learned.</td>
</tr>
<tr>
<td></td>
<td>4a. Analysis</td>
<td>clarifying relationships by breaking complex ideas into its parts.</td>
</tr>
<tr>
<td></td>
<td>4b. Synthesis</td>
<td>building new complex ideas by combining simpler ones.</td>
</tr>
<tr>
<td>Most demanding</td>
<td>5. Evaluation</td>
<td>applying a given set of criteria to decision-making, judging or selection.</td>
</tr>
</tbody>
</table>
lation of known concepts or information. Look carefully at the words you circled in Garrison's list and identify the corresponding emphasis in Bloom's categories. Are there skills that one list covers that are not covered on the other? Or are the differences between the lists limited to different perspectives? One contribution of Bloom's list is the proposed ordering of skills in terms of difficulty. The ability to merely remember a specific piece of information, the least demanding skill, is only the beginning. There are four levels of thought that he considers more demanding. However, many students seem to feel if they "know" the material, that is all that is needed. Unfortunately, for them, a higher level of thought is expected from college students.

If we look more closely at Bloom's list, we find that once the "knowing" level is passed, all the others require a weighing or translation of knowledge within new contexts. Thought, then, involves a shift in focus away from what we know. The process of thinking is a problem similar to deciding who is the taller of two individuals. "Taller" is not a characteristic of either person. I cannot focus on Sally and determine that she is taller, nor can I focus on Jean. I must shift attention from the individuals, and to be successful this shift in focus must be confined to a particular dimension. I must shift my attention from either Sally or Jean to looking merely at a comparison of the height of the tops of their heads.

So it is with thought. For instance, a student studying principles of psychology cannot understand how schedules of reward can support inefficient study techniques by focusing either on the definition of schedules of reward or examples of study techniques. The understanding comes when the student discovers the connecting link: (a) A behavior that is rewarded only part of the time is resistant to extinction. (b) Even ineffective study techniques pay off (perhaps by chance) part of the time. Therefore,
(c) one might predict that the occasional reward of ineffective study habits makes them harder to give up. The focus rests on the dimension that bridges the concepts, not on the individual concepts themselves.

Modularization

Jerome Bruner, by studying the development of human infants, identified a key prerequisite for shifting the focus of attention away from single concepts: modularization. Modularization is the act of stripping the extraneous features from a concept so that only a clearly defined entity remains.

Again, an analogy might help. When I first learned to drive a car, my actions were awkward and contained superfluous activity. I over-steered, over-braked, and made jerky starts on the clutch. As I got better at driving, I only turned the wheel the little bit needed, applied as little brake as possible, and smoothly coordinated engine speed with the clutch release. In short, Bruner would say I had modularized the skills of driving. Likewise, when a concept is first learned it is awkward and contains many extra ideas that may not be directly related to the concept. For example, a student who has just begun to learn about "calories" in a physics course might recall the definition something like this:

"A calorie is a way of measuring...referring to energy or work expended...that relates to production of heat...in the human when food is burned...or more precisely...it is a unit of measurement...the metric equivalent of the BTU...dealing with heating water...one gram...one degree centigrade."

The definition is essentially correct, but it has two important characteristics. First, there are several additional words that don't add to the definition and are indicative of possible
false directions the definition might have gone. Second, if the wandering path and the pauses (denoted by "...") are any indication, the mere act of remembering took a lot of attention. However, as familiarity with the concept increases, the irrelevant aspects drop away and the concept becomes more precise. If you want to contrast a modularized concept with one that is not, start with defining a term that relates to a hobby or special interest ("touchdown," "crescendo," any term you know well). After defining the familiar term, try defining a term you heard in class within the last week (but that you haven't thought about since class). You should notice an immediate contrast in the precision of the definition, and in the ease with which you can create the definition.

Let's return to my driving analogy. While I was learning to drive (before modularization) I had to be very aware of everything I was doing, alert to EVERY move. I had to remember which pedals to press at which times, what gears to shift, AND all the rules for driving in traffic. After I had learned, all those complexities became automatic. Likewise, when learning a new concept, the mere act of remembering it and expressing the concept requires a lot of concentration and demands significant attention (as in the calorie example). However, remembering the familiar (modularized) concept is automatic.

Once I had modularized the driving skill I could do other things while driving. When I was first learning to drive, a passenger took his life into his own hands by merely coughing. Now that I have successfully modularized the driving skills, a passenger may safely engage in conversation with the driver. As the modularized skill became automatic, I became free to focus my attention on the relationship of that knowledge with another idea. The more attention focused upon the mere act of remembering, the less attention there is available for manipulation of the remembered information. That is the key. Merely being able to remember information
is not enough. That remembering must occur with almost automatic ease. Then we can redirect our attention to manipulating knowledge.

Epilogue

Learning to think more effectively is a worthy goal that can be reached by any individual who is willing to accept the challenge and enjoy the fruits of the disciplined expenditure of mental energy. The preparation for thinking requires learning that goes beyond easy recognition. Free recall and modularization of concepts require study strategies and study habits that force the learner to examine the same information in many contexts and from varying perspectives. Once the learner is armed with material to think about, the real excitement begins. Which applications of knowledge are reasonable? Which analyses are logical? Which syntheses follow the rules of reasoning? Which evaluations are consistent with the criteria selected? These are the questions whose answers are at the very core of what it means to become educated.


HOW NOT TO BE A VICTIM OF TIME:
A FIRST LETTER TO AN ANXIOUS STUDENT

Dear Anxious Student:

Professor Peter Marchant, B.A., M.A., Ph.D., short of sight, and thin of hair, giving advice to undergraduates on how to organize their time! My undergraduate self of thirty years ago would not have believed the day would come. He would have looked at this middle-aged, academic picking out words of wisdom on the typewriter (and using unacademic language whenever his spastic fingers slip) with mingled horror, disbelief, and merriment. The fact is I was a terrible student.

I put off assignments because I was frightened of them. I did them, sodden with beer (for my nerves) and nervously exhausted, at 2 or 3 a.m.
of the morning they were due, hoping desperately that the sentences I was scrawling made more sense than I feared. They rarely did.

Failure bred failure. My lack of confidence in myself increased. In lectures I veered between extremes, taking down notes of everything the lecturer said (including his unfunny jokes) and neither listening nor understanding his sense; or I listened, eyes shut (to avoid looking at disturbing sex objects), understood, and having taken no notes, forgot almost everything by the following morning.

In taking notes from my reading, it was much the same thing. I either yellow-marked everything, later taking voluminous notes that were almost instantly illegible, or took almost no notes, so that by the following week the book meant nothing.

I cut lectures, read spasmodically what I was assigned, and voluminously what I had not been assigned, slept late, rowed in the afternoons from 2 till 5, returning to gorge myself on a huge and indigestible tea; fell asleep till about 8, and then struggled hopelessly to study for a couple of hours, finally giving up to go out to soothe my exhausted nerves, with warm beer or Merrydown cider.

How did I survive that awful first year?

Later I had a French girlfriend who said to me, "In France we say of people like you, 'There is a god for drunkards.'" I have no other explanation, except for the incredible kindness, patience and tolerance of my teachers.

It wasn't until my senior year that I began using common sense over study. That year, and later as a graduate student at Iowa, I developed techniques and strategies for using time efficiently, and I did a lot better. It occurred to me after I received my Ph.D. that much I had learned the hard way I might have practiced from
the age of fifteen -- but it had never occurred to me then -- I was far too frightened, and far too used to doing what I was told without using any common sense whatsoever.

That is how not to organize one's time. What do I do now that I didn't do as a neurotic undergraduate?

a. The day: I carry with me at all times a spiral notebook. I begin the day by listing everything I have to do, and everything that is on my mind -- this is in shorthand, of course, or it would take too long. If I'm worried at night at all about the mice I have to try and catch the next day, I list those also.

From my notes each morning I plan a rough agenda to make use of my best energy, and whatever is left over. I fill large time blocks with jobs that require them, and interludes of ten minutes or so with jobs on which I can work in short spurts.

My past undergraduate self would sneer and say, "But you never stick to your silly little plans." I would answer, "That's partly true, but I make better use of my time because of my attempts to plan than you ever did working higgledy-piggledy." That shuts up the ghost of my past.

What is important about my daily planning is that it gives me a sense of control. Also, since I plan all I have to accomplish in terms of its priority, it frees me from feeling that when I am working at one thing, I should really be doing another.

It is essential to be in control: of one's time, of one's note-taking, of one's reading. As a teacher I know that I must be in control both of the material for each class, and for the development of each entire course. This entails
both long and short-term preparation. I must know in advance the agenda for the day's class, and also the overall structure of my curriculum, even though -- I admit -- I depart from both frequently.

b. **Place:** You must find a place in which you can work comfortably and without the distractions of television, telephone conversations, or tempting invitations from the socially active. Establish habits of work by degrees, beginning with a modest unit of intense concentration, then rapidly building up. Drive yourself from one hour to twenty-five or thirty hours per week within the first two weeks of the semester.

c. **The month:** In front of me is my month-at-a-glance calendar. I note all my engagements, and also the times I am giving exams or collecting essays.

d. **The semester:** I plan my courses in a large journal so that I can stagger as best as possible the exams and research papers. This usually
doesn't work, and at midterm and the end of term exams and essays lie in discouraging heaps all waiting to be dealt with at once; nevertheless, I still say it is better to attempt a coherent and efficient plan that partially fails, than to have no plan at all.

This planning works for me. It should work for you. Try working from a month-at-a-glance calendar, noting when papers are due and when tests are going to be given. Don't put off either until the last minute. Similarly, the process of writing an essay, short or long, should be divided into separate stages, none of which is threatening — but more of that in my next letter. As in the teaching of an academic discipline, the secret is to break up a formidable task into separate stages, each of which can be completed successfully. The secret of becoming a good student lies in your learning to be your own canny teacher. Essays and exam preparation done in desperation at the last minute are an awful experience; accomplished stage by stage they can be — yes, joyous.

e. Exams and quizzes: As I said, play the part of the teacher. Devise searching and intelligent questions that you would give the class, and then (of course) answer them. You are never better prepared to study efficiently for an exam than immediately after you have taken it. That is just what I'm suggesting: prepare and answer your own exam, then take the teacher's exam with more confidence.

f. Buzz groups: Two minds are often better than one, and four better than two. Form study groups in all your subjects to go over the material and to make up mock tests. You should watch out in each course for one good student — not necessarily the best in the class, but one who is obviously trying to learn. Each of you brings one other person into the group. You divide the course material between you, studying the whole as students, but preparing one part of it as if you were the teacher. You answer each
other's questions on paper or verbally. Then the members of the group comment on each other's answers. Obviously, the group is reviewing the subject to be tested actively, as opposed to the solitary cramming which is likely to be inactive. It is common sense that the buzz group by and large will be successful much of the time.

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All of this, I repeat, is obvious. If we were discussing a sport, and I asked which was the better strategy for a team: to go straight into the season's matches with no thought and no preparation, or to plan carefully each step from early conditioning to careful individual game plans? no one would have any doubt about the answer.

Why, then, is the same common sense not applied to academics? The answer is partly custom -- we're not used to working in these ways in junior high and high school classes.

By education most have been misled; so they believe because they were so bred.

In college students are too frightened to respond to the academic challenge by using any of the considerable know-how they have acquired in sports or in part-time jobs. Also, students who would gladly accept an invitation to join a buzz group are shy about taking the initiative themselves. I sympathize with your fear and shyness, but nevertheless you must overcome them. Believe me, the first stages are the hardest.

I've suggested you find a good place to work. Establish gradually but surely the habit of work. Plan your day, your week, your month, your semester. Don't be discouraged if you don't stick to your plan. Find in each course good students with whom you can work. Persist in testing each other over the material; --- and that's enough for the moment.

Good Luck.

Peter Marchant
We all know how to read, having spent the past twelve or more years practicing on everything from the Sunday comics to the so-called "Classics." As we go through college and life, however, we sooner or later discover that being able to read is no guarantee that we will be successful on our examinations or that we will be able to put what we have read to practical use. Success really must be measured by how well we understand, retain, and use what we have read, the enjoyment that we gain from reading, and our ability to apply our reading skills in coping with the numerous problems that educated people encounter and are expected to solve in our postgraduate lives.

Unfortunately, relatively few of us have the opportunity to develop successful reading habits
in grade school or high school. In fact, many of the habits that we picked up when first learning how to read — like reading word for word, muttering words silently or out loud — actually interfere with our success as readers. These habits slow us down and keep us from isolating the most important concepts from the mass of fine points and data.

Fortunately, most of us have the abilities necessary to become very successful readers — to find the most important points in our readings, to retain what we read for future use, and to gain personal satisfaction from what we read. To do so requires that we develop habits that stress efficiency and effectiveness.

Efficient reading is the ability to learn what we want and need to know when we want and need it. When we read efficiently we absorb the important concepts and materials without having to read them over and over. It allows us to concentrate on the subject at hand without becoming distracted by our hungry and growling stomachs, our neighbor’s loud stereo, or our fatigued minds. It allows us to master what we read by actively exploring it and thinking about it, rather than by roteley processing other people's information simply to pass examinations. Finally, it allows us to accomplish as much as possible in the limited time available for study. Efficient reading is not the same thing as speed reading. Unlike speed reading, it does not require the use of special scanning techniques which may be difficult to master. In fact, the techniques of efficient reading are so simple that once they are learned, most students express amazement that they never developed these techniques by themselves.

Being able to read quickly is good, but in today's relatively high pressure world most of us want some measurable results as well. This is where effectiveness comes in. Effective reading is the ability to recall and use what we read so we can apply it in practical situations,
from passing an anatomy examination to saving a heart attack victim or from making sense out of the Freshman course in macroeconomics to making important corporate decisions. Effective reading is a lifetime skill that helps us to think by organizing our knowledge and understanding of what we read. Such a thinking process enables us to work out realistic and practical solutions to life's many problems.

It should be obvious at this point that effective and efficient reading are not simply techniques. They are ways of thinking and learning that, once mastered, will carry over to other aspects of life including recreation, the workaday world, and our daily survival.

Why is it that, despite our ability to read, we do not read as efficiently or effectively as we would like? Let us consider the case of a fairly typical undergraduate approaching a typical study session:

Told by his professor to read chapters three, four, and five of the text, our student sets aside an evening to study. Not sure how long it will take, he resolves to study "'til done." Starting on the first word of chapter three, the undergraduate wades through the chapter, word for word, stopping occasionally to underline important words or phrases. Not knowing where one important concept leaves off and the other begins, he starts to underline more and more of the text until about a quarter or a third of the words in the chapter have been underlined. Toward the middle of the chapter, he begins to find it more difficult to keep everything straight as more and more new words, facts, and ideas confront him. However, determined to do well on the next examination, he plods on. After completing chapter three, he repeats the same process with chapters four and five until his eyes seem to glide icily over the page. He drifts into a trance-like state, and he starts to get the uncomfortable feeling that he is not retaining much of what he is reading. Reviewing
for the examination consists of rereading the underlined passages in the same sequence that they appear in the text, over and over until they are firmly imbedded, our hero thinks, in his brain.

The next day the same undergraduate is in class taking the examination. All of the words on the examination look familiar. As long as the questions follow the exact sequence of topics as they appeared in the text, the examination seems fairly simple. However, several things happen during the examination to suggest that our student's knowledge of the text was not as complete as it could have been. Sometimes his mind goes blank — the terms in the questions look familiar but he cannot recall what they mean. He can reduce the choices in a multiple choice question down to c or d, but cannot tell which one is most correct. Finally, confronted with the essay question that requires him to discuss the relationship between the lecture on the physiology of the adrenal glands, the chapter on psychological stress, and the assigned article on the health of Bell Telephone executives that he read the week before, our hero breaks into a cold sweat and begins to seriously doubt whether he even read the same readings that the professor had assigned.

A few days later the professor returns the examination. Expecting to get an E, our student is overjoyed to see a "C" at the top of the page, the result of a magnanimous professor and a liberal grade curve. Nevertheless, his delight at having passed the exam quickly turns to disappointment and depression: "I really studied hard for the exam. I can't see why I keep getting C's. I just know that my grade does not reflect the work that I put into this course," he tells his professor. "Well," his professor replies, "I just guess you will have to study more."

Does this sound familiar? If it does, you are in very good company, since most undergraduates
(including myself, during my first three years of college) study in pretty much this same way. If this is such a time-honored approach to reading, what could be wrong with it? In fact, just about everything! Before we see why, let us turn to a more positive scene that might easily come from your own experience:

Think back to the last time you read something simply because you wanted to read it. Perhaps it was a mystery story. Or perhaps you were reading an article in a tennis magazine on improving your grip. Maybe you were looking up in a repair manual how to repair your balky carburetor. Did you wade through it, word for word, underlining every new word or concept? Probably not? You probably did approach the article or book with some goal in mind — escapism, self-improvement, getting your car to behave. You also probably read different sections of the article or story differently — skimming over unimportant or irrelevant material but slowing down when you got to points that were directly related to your goals. You probably thought about the subject as you were reading: "This guy Jones is a pretty shifty character; maybe he killed Bloomquist." "I don't have this problem when I play tennis, but this next thing that the author mentions is directly related to my problem." "Let's see, does my carburetor have this funny adjusting screw shown in illustration one?" As you finished what you were reading, you were sorting out the important concepts, putting them in terms that were personal, relevant, and remembering them. Yet you probably did not waste a lot of time reading the article over and over, the experience did not leave you tired or bored, and you probably remembered many of the finer points, even though you were not consciously trying to remember them.

How are these two approaches different? Why was one relatively successful, and the other not? Actually, the two approaches were as different as night and day, and illustrate some of the
problems that keep us from becoming efficient and effective readers. Two such problems which we will examine in more detail are:

1. Reading more than can be consumed, and

1. Biting off more than you can chew: It might sound like heresy if I argued that undergraduates actually read too much, especially in light of the fact that many of my colleagues (myself included) like to remember "the good old days" when students were supposed to be too busy to do anything else. (Before I sound patronizing, remember that the "good old days" refers to what we like to think that we did, not necessarily what we actually did.) By saying that undergraduates read too much I do not mean that you should spend more time playing foosball and less time studying. What I actually mean is that a good deal of reading time is spent reading the wrong thing at the wrong time so that it is all too easy to become lost in masses of details before understanding what they mean and why they are important. In the first example above, we saw our undergraduate trying to learn everything in three chapters, regardless of its relative importance. As a result, he started to suffer from mental indigestion, trying to cram in too much in too little time. In the second example, on the other hand, we saw what happens when you have clearly defined goals. Instead of trying to learn everything, you concentrate on finding the answers to specific questions. Because you are not trying to learn everything at once, it is much easier to learn what is really important.

For a contrast, imagine that two people are lost in a forest. The first one stops to look for the mossy side of each and every tree, studying every detail, in the hope of determining which way is north. The second person climbs the nearest tall tree and tries to get a general picture of the location, size, and physical fea-
tures of the forest, locates a large stream, then follows its bank downstream until he comes to a road or village. By the time that the first individual has studied his fifth tree it is dark and turning cold. The second individual is already home, sitting in front of a blazing fire, and enjoying a hamburger. Moral: Do not try to learn everything in one fell swoop. Break it down into workable units and try to find the answers to the most important questions first.

2. Memorizing all sorts of facts while missing the general concepts that make these facts meaningful: The typical approach to study is relatively passive. The student becomes so intent on processing all of the information that he or she has no time left to reflect on what it all means. This does not mean that the facts are unimportant. In some subjects you will have to learn many facts, definitions and details. However, there are different ways that one can learn facts. The least efficient, but most typical, approach is to read the same facts over and over until they seem to stick, as our hero did in the first example. However, this approach has several major disadvantages. The first disadvantage is that it is plain boring. Reading the same thing over and over is guaranteed to lead to fatigue, frustration, or both. In fact, medicine men sometimes repeat the same word or phrase over and over in order to induce trances. Being in a trance is not recommended when you have an exam the next day! Fatigue reduces our ability to concentrate on what we are trying to learn. Frustration makes us want to stop the task and do something more satisfying.

A second disadvantage of rote, sequential, reading is that you may end up not really learning the material at all. Instead, you may become an expert on the sequences of the topics, not on the topics themselves. Underlining tends to reinforce this rote sequential learning but does not really help you understand the concepts.
Very often we get into a pattern in which the eye sees a new word and the hand underlines it, with little thought being given to why we underlined the term in the first place. Would you honestly remember what you had just underlined if someone suddenly yanked the book from your hands? Most of us would not. Rote rereading and sequential learning also tend to give us a false sense of security and accomplishment. When we read and reread the same terms they start to look very familiar. We may even be able to chant the word's definition or we can literally visualize in our mind's eye what a particular section of a chapter looks like. Unfortunately, this does not prepare us to use these terms and concepts when they are put into new, real-life contexts or where we are asked to apply them in new and unique ways. Sometimes we experience mental blanks when we take examinations. This is often because we do not have the clues necessary to recall terms that we thought we had learned simply because they looked so familiar when we were reading them.

In the second example, where we were looking for information on fixing our car or improving our tennis game, we were less likely to fall victim to rote sequential memorization. We learned what we needed to know because we were using the concepts — not repeating them.

Studying With a Strategy

The problems we have just reviewed show the consequences of little or no advanced planning or strategy, other than to get through the chapter in the quickest time possible. If we approach our readings with clearly defined goals and a reasonable strategy for meeting these goals, we will be less prone to get lost. When you venture out on a hike through a forest it is helpful, or necessary, that you have (1) an idea of where you are coming from (so you can get back), (2) an idea of where you are headed (so you don't get sidetracked and lost in the forest at night), (3) a guide or map (so that you can
determine what is in the forest), and (4) a compass (to guide you). A similar approach can be taken when we read.

1. Where are we coming from? Most reading assignments do not just exist. They usually fill a gap in a course, either by providing more detailed coverage of topics covered in lectures, by presenting viewpoints different from those of the instructor, by illustrating points raised in class or in other readings, or by covering topics that are relevant to the course but not covered in class. Understanding something about the topics covered earlier in the course will help you to get from the readings what the instructor expects you to learn. For example, my own discipline, anthropology, is the study of human variation, adaptation, and culture. My course on World Cultures concentrates on the types of cultural adaptations that people develop in response to different environments and conditions around the world. This background information would tell you where the readings are coming from. A student in this course, then, would look for the way the readings, case studies, and articles assigned in the course illustrate how people develop their cultural adaptations in different environments. Why, he or she might ask, do Eskimos and Urban Americans have similar concepts of family structure whereas Navaho Indians have an entirely different concept of family structure? How does this family structure relate to the way these three groups adapt to their environments? In other words, if you first ask what the course is about, you will be better prepared to see how the readings relate to the course.

2. Where are we headed? Most readings, whether they are texts, chapters, journal articles, or stories, have some point of view or goal. Understanding what this goal is will help you to focus on the most important concepts and data within the chapter or article. For example, one popular sociology text has a chapter entitled "Modes of Sociological Analysis." A careful
reading of this title provides a number of clues to the direction of the chapter and the overall focus of the text. For one thing, it deals with **analysis** — how phenomena are studied and interpreted. More specifically, it deals with **sociological analysis**. Since sociology is the study of how people interact, particularly in the context of groups, this chapter will probably deal with the way these relationships can be studied and interpreted so that we can understand how and why people interact with one another the way they do. Finally, it deals with **modes of analysis**, implying that there are a number of approaches that sociologists take when they study human society. When one reads this chapter, then, one should try to answer these questions: How do sociologists study society? What questions regarding society do they try to understand and answer? What types of methods do they use? How are these methods different or similar? Anyone who could answer these questions would probably be able to master the important concepts in that chapter.

3. **What kinds of guides can we use?** Most texts contain built-in guides that allow us to determine, in general, what the text or chapter is about — its limits, its resources, and its hazards. The **preface** at the beginning of the text is one such guide. It defines the perspective or point of view of the author and thus gives us some idea of what to look for and what to look out for. The **table of contents** is another useful guide. It provides us with a picture of the scope of the text and thus allows us to determine where the materials and concepts of a particular chapter fit in. Most chapters will have an **introduction** and a **summary**. These indicate what the chapter will cover or they summarize the main points of the chapter. Finally, each chapter usually has some **subject headings** that indicate the major concepts (and sometimes many of the minor concepts) of the chapter. Since most text chapters contain an average of seven (give or take a few) major points, and these are often indicated by subject
headings, you can get a clear idea of the chapter's major theme and main points by looking for these headings.

4. **How do we find our direction?** In the woods, you can find your direction by reading the stars, looking for landmarks, or by using a compass. In your courses, there are a number of direction indicators as well. One of these is your lecture notes. They will give you an idea of the major themes of the course and you may assume that the readings are assigned to illustrate, enlarge upon, or complement these themes. Sometimes your instructor will also give you hints. If he or she advises you to concentrate on a particular theme in chapter five, be sure to give this theme particular attention. Examinations also can provide you with direction. If all of the quizzes in a course have included definitions, you should pay careful attention to the definitions of major terms and concepts in the text. If the quizzes tend to stress the way concepts from the readings can be applied in new situations, you should look for potential implications of these concepts.

A compass can be used to help you find your way out of a forest if you happen to become lost. Since most students get lost at one time or another, it is helpful to know how to reorient yourself so that you can get on with your task. One important aid is the glossary. This is a list of terms and definitions and is particularly helpful if you have forgotten the meaning of some important term. The glossary is usually found at the end of the text. Another useful guide is the index. Sometimes a concept that is not clear will be discussed more clearly elsewhere in the text. Many texts have a bibliography at the end of each chapter or the end of the text. This can direct you to other sources where you can find explanations of concepts that were not clear in your present text. Finally, there is your professor. All of the professors at Brockport have office hours. Sometimes a brief chat or phone call will provide the
missing link necessary to make sense out of an otherwise confusing chapter.

Why Am I Reading this in the First Place?

Not all books are created equal. In fact, different professors will assign readings for quite different reasons. If you can determine why and how the book or article relates to the course you can make better use of it. There are several types of readings that you might encounter in your courses:

1. The basic text: Some courses use a text that covers the same materials covered in class, but in greater detail. Class sessions -- whether devoted to lectures or discussions -- provide previews or reviews of the important concepts. In such courses, keeping up with the text will also help you to get more out of the lectures and vice versa. Other courses use a basic text, but its purpose is to cover materials not covered in lectures. For example, the text may provide the basic facts and concepts of a particular discipline while the class sessions will explore themes that are different from, but require a knowledge of, these facts and concepts. In such courses, it is essential that you master the text materials as they are assigned or else you will not be able to make effective use of the lectures or class discussions. When you read a basic text, remember that it can help you in a number of ways. It can be used as a reference book to fill in concepts that may not have been adequately explained in class. It can help you map out the course so that you can determine what is likely to be stressed in later classes or readings. It can be used to check out the accuracy of your lecture notes.

2. The supplemental text, case study, etc.: Many courses require that you read one or more supplemental readings in addition to the basic text. These usually provide perspectives or data that are not covered in great detail in the basic text, or they may be used to stimulate
your thinking about a particular topic, perhaps by exposing you to different viewpoints on the same topic. Before you read these, you should determine the main thrust of the course and then try to determine how the supplemental reading illustrates, contrasts with, or complements this main thrust. For example, a course in Elizabethan literature might have you read stories and plays by representative Elizabethan writers, or a course in Sociobiology might have you read a number of articles, some of which support the sociobiological arguments regarding the inheritance of behavior and some of which challenge these arguments. Many of these supplementary readings will present specific, and sometimes contrasting, points of view. It is important to determine what these points of view are and how they are similar to or different from the points of view presented in the basic text or lectures. Once you identify these points of view, you will be better able to understand how the facts and figures are used and relate to these viewpoints.

Supplemental texts take a number of forms. An anthology, for example, is a collection of short articles or essays which usually present different perspectives on a particular topic or discipline. Another type of supplemental text is a handbook, which is used as a reference work. It may contain essential statistical formulas, chemical formulas, anatomical diagrams, maps, or other materials to which you may have to refer in order to make best use of the basic text, lectures, and homework assignments.

A third type is the case study extensively used in the social sciences. In anthropology courses, for example, students may be asked to read a detailed description of one or more non-Western cultures in order to gain an understanding of how anthropologists study society and culture, and how people living in different areas of the world adapt to and describe their environments, societies, and values. In a social work course, the student may be expected to read several studies describing how social
workers viewed, approached, and dealt with a particular social problem or group, such as a Chicago youth gang or underfed migrant workers in New Jersey.

No matter what type of supplemental readings you encounter, it is important to remember that they are usually assigned for a reason. Often, but not always, the professor will explain how the course will be used at the beginning of the semester. Determining that reason will help you to relate them to the general themes of the course and will help prevent you from getting lost in masses of data and detail.

In Summary

Effective and efficient reading involves getting as much as possible out of your reading in a reasonable time and retaining what you learn so that you can use it. To become an effective and efficient reader, you should:

1. Schedule reading so that you can master a little bit at a time instead of trying to learn everything at once;

2. Seek out the most important ideas first and use these as a basis for learning the finer details;

3. Be actively involved in the subject by thinking about it and by seeking answers to questions instead of by simply cataloging every fact and figure as you encounter them;

4. Start with a strategy that will help you determine: i) why the reading was assigned and how it relates to the course; ii) what you are expected to learn from the reading assignment; iii) what the main points of the chapter are; iv) how the main points can help you understand the finer details; and v) where you can go for help if you get lost.
Part II
FROM THEORY TO PRACTICE

By now, you should have a pretty good idea that efficient and effective reading is not a mysterious and lost art, but simply results from approaching your readings systematically and logically. So much for theory. We will now look at how this theory can be turned into practice. Before you read on, select one of your textbooks from one of your more difficult courses (but not a mathematics text, which must be approached differently). The exercises outlined below can be completed by using that text.

Getting Started

Study, like mountain climbing, is most rewarding when you are properly prepared and equipped. To climb a mountain you need: a good reason for climbing it, adequate time to get to the top and back again, proper equipment, and, of course, a mountain. Depending if and how well you are prepared, your expedition can reward you with the most exhilarating experience of a lifetime.
or it can leave you exhausted or dead. Similarly, with study, you need some advance preparation if the experience is to be a rewarding one. You will need to have realistic goals that you wish to achieve, an appropriate place and time to study, proper equipment such as a notebook, pencil and your classnotes, and, of course, something to read.

Where to study: A common student complaint at most colleges is that it is difficult to find a quiet place to study. Actually, once you have mastered the art of effective reading, you will not find your neighbor's party or your talkative roommate so distracting, as long as you are not subjected to ear-shattering noise. Therefore, while peace and quiet is nice, you will not necessarily require the solitude of a tomb. What you will need is a place where you can write as well as read. A well-lit table or desk is desirable and your chair should be reasonably comfortable, but not so comfortable that you are likely to fall asleep. Some studies have shown that we remain most attentive when we are just slightly uncomfortable -- a fact recognized by the designers of church pews. Beds, which are designed for sleeping and other non-studious activities, are not good places to read unless you are willing to take the chance of falling asleep (mentally if not physically) halfway through your assignment.

What to have when you study: A notebook is desirable or essential. It can be a separate section of your classnotes or you may want to have a separate notebook for your readings. It will be used to record impressions, key words and definitions, synopses of chapters or articles, questions regarding points that are not clear to you, and other useful bits of information. A well-prepared reading notebook will provide you with something from which to study when you prepare for your final examinations. You should also have your classnotes handy. You can review the class materials before reading the assigned chapter in order to help you relate
the readings to the lectures, and vice versa. Since your text will normally contain more detail than your class notes, you can use the text to fill in sections of your class notes which are unclear or incomplete. This important cross-referencing between text and class notes is one of the best ways to organize your understanding of the course materials.

When to study: Take a sheet of unlined paper and divide it into seven columns, one for each day of the week. In the left margin mark the hours of the day — all twenty-four of them. You will now have a grid in which you can plot your best study times. Blacken in those spaces that correspond with those times that you must be in class, commute to school, work, eat, care for your children, if appropriate, and take care of other obligations. In theory, this should leave you with time to sleep and study. Set aside at least six to eight hours every night for sleeping. You will find that there is still a lot of time to devote to study, even if you work a full-time job, have a family, and spend an hour a day in leisure time activities. Having a lot of time to study does not necessarily mean that every course that you take will require the same amount of time. Some courses require more reading than others. Some of us understand certain fields but get hopelessly lost in others. Finally, we all have different attention spans and levels of self-discipline.

It is a good idea to budget your study time to allow enough time to learn something substantial, but is not so long that you become so tired that you cannot concentrate. Usually, if you spend an hour concentrating on a particular subject — such as mastering chapters two and three of your sociology text — and follow this with a twenty-minute break devoted to playing cards, snoozing, or otherwise relaxing; you can then return to your study with a sense of accomplishment and reward. On the other hand, if you set aside an unlimited time to read five chapters, without any sense of how long it will take...
and what you expect to accomplish, you will probably become fatigued and bored. You will be prone to distraction, and you will probably not retain much of what you have studied. In other words, to get the most out of study you should schedule in your rewards as well as your labors.

Sizing Up Your Text and Reading Assignments

Turn to the next assigned chapter in the text that you have chosen for this exercise. Answer these questions:

A. How long is the chapter? What reasonable goals can I accomplish in one hour of uninterrupted reading -- learn the main points; learn how the data support the main points; read the entire chapter and learn all of the important details? How long would I normally spend on this chapter?

B. What is the title and subject of the chapter? How does it relate to materials that were recently covered in class or that will soon be covered in class? How does it relate to the general focus of the course? Does it cover the same material covered in class or does it cover material that will not be covered in class?

Answering these questions will help you decide what you can reasonably accomplish in one hour. In fact, when you apply these techniques you will probably achieve more in that hour than you thought you would.

Getting Down to Business: Finding the Main Points

A. Give yourself three minutes to read the chapter. "WHAT?" I hear you saying, "I can hardly read it in thirty minutes, let alone three!" Obviously no one in his right mind would expect you to read every word of the chapter in three minutes. However, three minutes is adequate time to answer the first and most
important question: What is this chapter about?" A number of years ago, an experiment was conducted at the University of Wisconsin in which a randomly selected group of freshmen was assigned three minutes to read a standard text chapter. A control group was allowed an hour to read the same chapter. When they were tested on their understanding of the main points of the chapter, the three-minute group did better than the hour group. Why? Because the three-minute group knew that they could not afford to spend a lot of time getting lost in details, they concentrated on pulling the main points from the chapter. They did not even try to read every word. They did look at the title, the section headings, tables and illustrations, and they skimmed over the first paragraph and summary with only one question in mind: "What is this chapter about?" The members of the one-hour group, on the other hand, waded through the chapter, word-for-word, until they were totally lost. IF YOU KNOW WHAT THE CHAPTER IS ABOUT, YOU CAN THEN ASK YOURSELF SOME INTELLIGENT QUESTIONS ABOUT ITS MAIN POINTS AND SUPPORTING DETAILS.

B. Now that you know what the chapter is about, you can answer the next question: "What major points is the author presenting?" Note that this and the initial three-minute reading are done to answer questions. When you ask yourself a question then explore the chapter to find its answer, you become an active learner. Because you are looking for specific answers, you will tend to find them more effectively than if you simply try to pound fact after fact into your brain.

Give yourself ten minutes to identify the five to seven main points of the chapter, then summarize them, in your own words, in your reading notebook. There are a number of clues that can help you locate these points: section headings, the first paragraph, the summary at the end of the chapter, review questions that the author may include at the end of the chapter. If you
find yourself getting bogged down in fine details, stop and say to yourself: "Whoa! I have plenty of time to deal with these later on. All I want to do now is identify and describe the main points of this chapter." If you make sure that you concentrate on these points, you will not normally require more than ten minutes to complete this phase. "Shouldn't I be underlining the main points as I locate them?", you may be wondering. Absolutely not! As we saw earlier, underlining tends to become a crutch. It becomes a substitute for thinking. If you must remind yourself where important points are located, write a brief reminder in the margin of the text. When you write it, however, ask yourself this question and then answer it in your mind: "What does this term or concept mean and how does it relate to this course?" This will prevent you from rotely writing down concepts that you do not fully understand.

By this point you will have spent about thirteen to fifteen minutes on the assignment. You should have a fairly clear idea of the topic and major points of the chapter.

C. Now turn to your reading notebook and write a brief abstract of the chapter. This is a brief summary, no longer than two hundred words, of the major points raised in the chapter. This abstract will provide you with a general introduction to the chapter's main concepts when you review it before an examination.

Going for the Details

Professors and courses vary in their emphasis on the finer details. In some courses, you are expected to know and understand the basic concepts of the reading assignments. In many or most courses, however, you are expected to go beyond the general concepts in order to master the fine points. These fine points consist of definitions, special terms used in a particular discipline, and the facts and figures that are used to support the general concepts. In a history
course, for example, you might be called upon to know the names of various European monarchs and the dates that they reigned. In an anatomy course you would be expected to know the names, locations, and functions of the various muscles, nerves, bones, tissues, and organs of the body. There are a number of techniques that can help you to remember and use these details, but the most effective ones involve techniques that force you to think about the details while you study them so you can place the details into some meaningful context. The best approach is to redefine and explain the various facts, figures, illustrations, charts and maps that you encounter so that they relate to things that are relevant to you.

For example: You are studying for an anatomy examination covering the head and neck and encounter the following phrase: "The sternocleidomastoid originates in the sternum and sternoclavicle joint and inserts in the mastoid process of the temporal bone." You could try to memorize that mouthful by repeating it over and over, but by the time that you had tried to learn the location, origin and insertion of ten or twenty other muscles your knowledge of the head would probably be limited to the fact that you now had developed a massive headache! You might as well try to memorize a series of phrases in Early High German without having studied German. To make sense out of that anatomical monstrosity (and to learn it as well) you might try to relate it to some general concepts and use these to guide you to the specifics, like this:

"Let's see, I better find out what the origin and insertion are. According to the glossary, the origin is the stable bone to which the muscle attaches and the insertion is the more movable bone at the other end of the muscle. I see. If the muscle contracts, the bone called the insertion is the one that moves. Now, where are the sternum and clavicle? According to the diagram of the skeleton the
sternum is the breastbone and the clavicle is the collar bone. Gee, I can feel them here at the top of my chest. Now, where is the mastoid? Oh, that's this big bump behind my ear. I can feel this long muscle attached here and trace it down to my sternum. What happens if I contract it? My head turns."

Having gone through this exercise I now have a very clear idea of the meaning and function of origin, insertion, sternum, clavicle, mastoid, and sternocleidomastoid. In fact, I will probably remember it as long as I live and I have not spent a single minute in rote memorization. Note that I was making use of a number of aids to help me learn -- skeletal diagrams, the glossary, perhaps the index, and my own body. By concentrating on what the sternocleidomastoid does, I also learned a lot about how my own body works along with a number of anatomical terms.

Similar approaches can be applied to other terms and concepts, as well. For example, it is easier to remember that King Henry VIII of England was born in 1491 if you realize that he was born one year before Columbus discovered the Americas, or you can more easily appreciate the size and population density of China if you realize that China is slightly larger, in land area, than the United States. In other words, try to remember details by relating them to something that is familiar to you, something that you can visualize in your mind, or that is of personal concern to you.

Before we go to the next exercise, let us review what you have accomplished thus far. First, you identified the main theme of the chapter and its relationship to the course. Then you identified the major points of the chapter. This should have given you a general idea of the theoretical perspective of the chapter. To illustrate why this is significant for understanding the fine details, which will come next, let us imagine that you are reading a mystery novel. A mystery has a theoretical perspective: A crime has been
committed, clues are left behind, and several people seem to be likely suspects. When you read the novel you are trying to outguess the detective in discovering who is the villain. Knowing the general theory of mysteries, you can start to sort out the important details from the less important ones. For example, the fact that Dr. Watson's tea was served with bread and jam is probably not of consequence, and you probably would not remember that fact. On the other hand, the fact that Sherlock Holmes had been missing for a week would be of extreme importance and you, like Dr. Watson, would probably be looking for an explanation for Mr. Holmes' disappearance.

The same approach applies to your study. If you have a general idea of the basic theoretical framework of a chapter, you will be better able to determine which facts are of primary importance and which ones are of less importance. Thus, in reading a chapter dealing with presidential approaches to inflation, you would probably not pay close attention to the fact that President Johnson liked to host barbeques, but you would probably pay close attention to "jawboning," his tendency to put personal pressure on corporations and unions whose policies seemed to be inflationary.

Sometimes we are called upon to demonstrate a mastery of the finest details. This is particularly true in data-oriented courses whose primary focus is to provide you with information and data considered basic to a particular major, career, or profession.

You are now ready to return to your text chapter and read it for the details. You now want to master the fine points -- key words, new terms, special vocabulary, etc.

Read the chapter from end to end. Every time you come across a new term or concept write that term down in your notebook. Do not write its definition, because it is very easy to get into
a habit of rotely writing without thinking. Do ask yourself these questions and answer them in your mind only!

A. What does this term mean? Answer it in your own words.

B. What concept does this term illustrate? Why did the author use it and why did I write it down?

C. Is its meaning really clear to me? If not, can I find a better explanation in the lecture notes or in the glossary?

Sometimes you will encounter a general concept that cannot be described in one term. In that case, devise a key word that best reflects that concept. For example, a biology text might have a long section dealing with the reproduction of peas in order to illustrate Mendel's principles of heredity. You might write in your notebook "heredity experiment," then ask yourself what it implies and why it was important.

This may be difficult to get used to at first. If you stick to it, however, you will find that it will help you to develop the habit of thinking your way through the course details and concepts rather than rotely memorizing them.

When you are done, you will have a list of important terms and concepts. Review this list, asking yourself what they mean, how they relate to the general theme of the chapter, and how they support the basic points raised by the author, and how they relate to other concepts discussed elsewhere in the readings and lectures. You will probably be surprised to see that you actually know and understand most of them. If you are not sure of the meaning of a particular key word or term, look it up. This type of self-check and review will help to reinforce these concepts while keeping you aware of what you still need to learn.
What Can You Expect to Gain
From this Method?

This chapter has stressed two sides of successful study and reading: efficiency and effectiveness. Generally, students who use these techniques find that they can increase their reading speed by as much as one-hundred percent while being able to retain much more of what they read. In addition, because this approach stresses thinking, rather than rote memorization, students find that they are usually more successful in putting what they read to practical use -- on examinations and in day-to-day situations. Finally, because this is an active process that has built-in rewards and that allows the student to see exactly how far he or she has progressed, it tends to make study a pleasurable, rewarding, and satisfying experience.

At the beginning of the chapter I indicated that I was one of those inefficient, ineffective, plodding readers during my first three years of college. In fact, I spent my first three years of college trying (often unsuccessfully) to stay a fraction of a quality point ahead of probation. So, you may ask, who am I to write a chapter on effective reading?

At the beginning of my senior year of college, I looked back over my college career and analyzed what was wrong with my reading habits. I compared my own habits with those of my successful and less than successful classmates, and found that I pretty well fit the profile of the "typical" undergraduate described at the beginning of the chapter. I then set out to devise approaches to study that would keep me from falling into the trap of passive rote reading. Where I tended to passively process information, I had to develop ways of forcing myself to think. Where I tended to get lost in masses of data, I had to force myself to find the general concepts so that the data could make sense. The results paid off, and, instead of my normal
straight C's, I started to get A's and B-plusses (and this was before the days of grade inflation). Furthermore, I found my courses more enjoyable. I wanted to study more because it was less boring. Books that I had to ponder over for days could now be read in a few hours. When I started to teach college in 1966, I discovered that many of my students were having the same problems that I had experienced. These techniques proved as effective for them as they had for me.

As a final note I should acknowledge that experts in study skills education will find much in this chapter that is familiar. That is because this is not a particularly mystical approach to effective reading. Instead, it is a fairly straight-forward and logical approach that stresses what we all probably knew already: We all learn best when we are actively involved in what we are learning. With these guidelines you should now be ready to develop and experiment with your own active, efficient and effective approach to reading and study.
GOING TO CLASS...
BEING THERE IS NOT ENOUGH

Bob came out of class looking tired and a bit sleepy. He commented to a friend that the class had been the most boring waste of time in his life. The hour had seemed an eternity as he had searched for one diversion after another to help make the minute hand speed up. The fact that he had an appointment with a newly found friend immediately after class had not made matters better.

Across campus his professor, Sage Young, was having coffee with a colleague. The topic of conversation was the class Sage had just taught. "John, I just don't understand it. I have two sections of the same course. This morning's class was with me every step of the way. With the afternoon class I felt as though I was talking to a room full of painted rocks. They were unresponsive and inattentive. I could hardly wait to finish and get out."
"Sage, I know how you feel. If a class isn't responsive, teaching is like pulling teeth. Can you imagine standing next to a department store dummy and trying to explain to it the difference between Baroque and Victorian architecture? I certainly wouldn't put much into doing it well. After all, teaching is communication, and the listeners' reactions are as important as the speaker's words. No one can spend an hour talking with someone who shows no interest in what is being discussed and who listens only part of the time!"

Discussions like these occur daily on campuses around the world. Not all classes are going to be exciting. Any student can have the kind of day when even a three-ring circus could not hold his attention. Likewise, faculty members find some topics more exciting than others, so their enthusiasm will vary from day to day. And on some days either students or faculty may be influenced by events that have nothing to do with the class. Two things are certain: First, the good student must learn to maximize what can be learned even from a seemingly slow class. Otherwise, the student runs the risk of missing important learning opportunities. Second, the positive reaction and interest that students display in class often markedly increase the instructor's enthusiasm for teaching.

People often see a class as a place where teachers teach students the facts needed to pass a course of study. But the college classroom may be something radically different from that common expectation. Facts and basic information can be found in books. Most college students are smart enough and mature enough to learn those facts from books. The college faculty, on the other hand, offer a varied array of unique talents. They are the very scholars who are discovering the principles being taught. More than at any other place in the students' education, the college classroom provides a powerful mixture of three dynamic ingredients: the students, the faculty member, and the sub-
ject matter. The college classroom is where the student who is acquiring an understanding of new facts can meet with the scholar who is inventing new principles for organizing those facts.

I can recall a course in physiology in which we were studying the inner workings of the brain. I had read the textbook thoroughly and learned the basic terms and concepts. For instance, I had learned that the amygdala in the middle of the brain can produce rage or fear depending upon where it is stimulated. These were the facts. In the classroom Professor Moyer breathed life into those cold facts. His scholarly reading in the professional journals kept us abreast of the latest research developments in physiology. He made us feel as though we were somehow participating in the unlocking of the mysteries of the brain. His vivid accounts of the results of surgery on the brains of his laboratory rats provided realism to otherwise mundane research reports. But most important, Professor Moyer was a living, breathing example of a thinker, a problem solver. And in class we could interrogate him until we discovered the keys to how ideas are born. His classes were not to be wasted on the mere recitation of facts. The "amygdala," "fear," and "rage," were only the clay from which our insights were molded.

Admittedly, every course does not live up to the level of Dr. Moyer's classes. Occasionally, even his classes did not reach above the average. But the ingredients are present in every class. The student, the subject matter, and the scholar/instructor. The question is, how can we get the most from these meetings?

Getting the Most Out of Class: PREPARATION

If the college classroom is the place where students are to be challenged to think creatively about selected subject matter, then that classroom is not where students should learn the basic material. The student is expected to come
to class prepared to think about the topic of the day. It is not likely that many students can simultaneously learn information that is totally unfamiliar and manipulate that information in a meaningful way. In Professor Moyer's class, had I not already known about the basic relationships between the amygdala, fear, and rage, I would not have been able to comprehend his description of the behavioral effects of electrical stimulation of the brain.

The description in the preceding paragraph is the ideal of what a college class ought to be like. It may or may not be obtainable. But there are other reasons for being prepared for classes:

(1) Class will be more interesting if you already know enough about the content to listen actively.

(2) Hearing terms discussed after you have already become familiar with them will reinforce your learning. Your ability to remember the information will improve because of the repetition and because of the instructor's additional point of view.

(3) By studying before class you can identify concepts that you may have trouble understanding. In class you can then ask for clarification and you will know to listen especially closely when the difficult concepts are being discussed.

(4) By knowing the basic concepts before class you can be prepared to challenge the points of view expressed in class. Unless you are prepared, you can only passively accept the professor's point of view.
Dr. Noah Brane always delivers the same speech when meeting his classes for the first time:

"On the topic of course attendance, I feel you are all now mature adults and capable of taking responsibility for your own actions. If you don't want to come to class, that is your business. It makes no difference to me whether you are here or not. You must take the responsibility for deciding to get your own education."

He really means it when he says that the student must take responsibility for her own education. He also is sincere in the belief that college age students ought to be mature enough to handle that responsibility. Most people in higher education accept both of these statements. But do not be misled. Professor Brane does not mean it when he says he does not care if you come to class or not. I have heard his laments on Friday evenings after dinner.

What my intelligent friend seems to misunderstand is a matter of communication. He is so very eager for his students to accept responsibility for their own futures that he accidentally suggests he doesn't care. In fact, if you catch him when he isn't preaching about independence, you will find that he really believes that class is an essential part of the course. Whenever you hear the phrase "I DON'T CARE ..." from a faculty member, it can be translated to mean "I won't take your responsibility for you. YOU MUST SEE TO IT THAT YOU GET HERE."

Getting the Most Out of Class: ACTIVE LISTENING

Which takes the most mental energy, speaking effectively or listening effectively? You have a good chance of being correct if you said "the good speaker works harder than the listener." After all, the speaker must plan what is to be said, must search for the best words and sen-
Effective listening involves more than hearing the words and figuring out what those words mean. Effective listening also involves relating what is being said to what you already know. This practice serves two purposes. It helps you test whether the ideas expressed are consistent with other similar ideas you are familiar with, and it also aids you in organizing the new ideas into your own memory structure. For instance, suppose that you were listening to these words rather than reading them. If you have had a psychology course, you might relate the discussion of active listening to what you know about how associations improve memory. Or perhaps you might relate the discussion to your own experience when listening to friends. It is simply easier to pay attention to a conversation if you can relate it to familiar ideas.

A second task that contributes to effective listening is determining the structure of the speaker's argument. Few speakers (or writers) talk randomly. The way they choose to organize their presentation may provide insight into their intentions. Again, assume you were listening to this chapter. Why did I, the speaker/writer, begin by discussing the nature of "a classroom"? And why did I follow that discussion with a discussion of "preparation"? If you cannot answer these questions, you may have missed the point of what I have been saying. This is true when you listen to any oral presentation. The organization of the presentation contains many keys to its meaning.

A third task for the listener is identifying hidden assumptions. Again, consider this
chapter as if it were being spoken. What have I assumed but not stated? One such assumption has been that students prefer to maximize learning rather than minimize their effort. Is this a valid assumption? If it is not, what effect does that have upon the reasonableness of the rest of my presentation?

Finally, the listener should evaluate the amount and validity of the substantiating evidence provided by the speaker. Speakers have a habit of making statements in a convincing tone without bothering to support what they say. Listeners should at least be suspicious of statements that can not be backed up with facts. Whenever possible, the speaker should be asked what evidence is available to support his point of view. The listeners can also check their own memories to identify any evidence that might prove or refute the speaker's ideas.

Active listening, then, involves actively thinking about what is being said. Active listening is a habit that can be formed by any listener. On the other hand, it is very easy to form the habit of listening passively. Active listening, like thinking, is hard work. But that extra effort pays off. It pays in the amount you will learn. Even more importantly, it pays off because your classes will become more interesting as you become more actively involved in them (even if only as an active listener). By the way, you may have noticed that I have drawn a parallel between reading and listening. The techniques I have suggested for active listening work equally well for active reading. And the result is the same: increased learning and decreased boredom. If you wait for knowledge to happen to you (whether reading or listening), you stand a good chance of becoming bored and sleepy. If you "get into" what you are learning, the results are bound to be more positive.
Getting the Most Out of Class: SIGNPOSTS

There is a lecturer on campus who stops his lectures at the end of each key point. He stops to take a short sip from his coffee cup, he glances at his lecture notes to remind himself of the point he wishes to develop next, and then he asks if there are any questions. He provides a perfect set of signposts for his students. They can check their notes and make certain they have understood the point he just finished. If they do not, they can (and do) ask for clarification. However, I have noticed that many students completely miss the significance of these obvious signals. To them the lecture is one long, undifferentiated sequence of words and pauses. Each sentence sounds like every other one. HOW DULL.
If you are fortunate enough to have this particular instructor, you should make good use of his coffee drinking (it is rumored that there is not coffee in his coffee cup). Even if you do not encounter this instructor, you will encounter others with their own peculiar signposts that mark the changes in the organization of class. Look for them, they are valuable. Sometimes the signs are key words or phrases, such as "In summary..." or "the two reasons this is true are..." At other times, the signs may be contained in the pauses or the changes of speed or volume of the presentation. Some faculty even mark changes by the way they move around the room, perhaps walking back to their notes before starting each new topic of discussion. Others will even tell you exactly what their lecture outline looks like.

Getting the Most Out of Class: TAKING NOTES

Although taking notes may be necessary to be certain you can remember what went on in class, it also can interfere with effective listening. Some students become so engrossed in writing everything that is said into their notebooks that they never really understand any of the class. The answer may be overly obvious, but why do we take notes? Once the class is over, we need a means of reviewing what happened in class. If you take useful notes they can serve you, not only as study aids for tests, but also as reference material when you are taking other related courses. You may find this surprising, but I still refer to notes I took as an undergraduate almost 20 years ago. What characteristics make class notes useful?

The first, and foremost, characteristic of useful notes is that the notetaker must be able to refer to them at a later time and make some sense out of them. "rit. undo - hnd&hnd reac form" might have had meaning while listening to a lecture on psychological defense mechanisms. What does it mean later? If you must use shorthand, then recopy your notes soon enough after
class so you can remember what the shorthand means: "Ritualistic undoing goes hand and hand with reaction formation."

Secondly, you should be selective about what is written in your notebooks. Do not try to transcribe the entire class. Write down the key ideas and principle supporting evidence. You should also copy any formulas that are not available on handouts or in the text. Definitions are important (especially if the instructor pauses and then repeats the definition). The really difficult question remains, "How can we possibly know which of the ideas are the "key" ideas?"

Getting the Most Out of Class: ORGANIZATION

Most instructors do not approach class without a plan. As you become aware of that plan, the key ideas are easier to identify. Most classes contain the following organizational elements:

1. Introduction: Few classes jump right into the first main point. The instructor generally starts with either some comments to set the stage for the class, or even with something completely extraneous to class. One colleague starts each class with a report of the news of the day, particularly referring to any news items that may relate to the subject of the course. The introduction helps prepare the student for participating in class while providing the instructor the opportunity to warm up a little.

2. Main Points or Thesis: Most classes cover from three to seven main points. These are general propositions or concepts that are stated and then developed. For instance, in an Introductory Psychology class the instructor might discuss "perception." He could begin by defining perception. Then he might describe how psychologists measure the perceptual experience. Then he could describe size constancy. Each of
these three topics is a main point, and each should be identified as main points in the students' notes.

Much of the meat that contributes to understanding the main points is contained in the supporting evidence or illustrations. In the perception lecture mentioned earlier, the third main topic is size constancy. Size constancy is the phenomenon that we perceive objects as being large even when their image on the eye is quite small. An illustration is provided: When we see a tree that is in the distance, the retinal image is smaller than that of the bicycle beside us. Yet we perceive the tree as being much larger than the bicycle. The illustration adds meaning to the definition. The instructor will probably continue by describing several research studies that reveal other characteristics of size constancy. The evidence, arguments, and illustrations are given to support the main points and to provide depth to the main points. Your notes ought to clearly differentiate the main points from the supporting material associated with them.

3. Summary: Some instructors summarize after each main point and others only summarize at the end of the class period. Either way, the content of the summary should help you check to see if you have identified the main ideas of the class successfully. Often students close their books and begin to gather their belongings as soon as the summary at the end of class begins. Is this a reasonable thing to do?

4. Digressions: Occasionally an instructor takes a detour away from the principle plan of the day. An interesting idea related to one discussed may lead the class on a tangent, or the instructor may merely feel the need to spice up class with an amusing story. Stay alert for digressions, so that later you don't wonder why all that stuff about gardening is in your history notes.
Getting the Most Out of Class: CLASS PARTICIPATION

There is a temptation, particularly if you are shy, to sit quietly by and allow the class to run its course. If the course is one in which class discussion is expected, you may want to participate more actively. Not only may your grade depend upon it, but the amount you learn will be increased by your extra commitment to the class. Getting started in class discussions is not easy for many students. Here are some hints that may help.

First, prepare for class by studying the assigned materials. Identify and become sufficiently knowledgeable about the important concepts so that you can freely remember them. Also, identify areas you do not understand. If possible, formulate questions about the material you are having problems with.

Second, when you are in class, stay active mentally. Know what is being discussed and what point is being made in that discussion. When you do not understand, ask for clarification. It may be a case when no one else in the class knows what is going on either. If you do understand the discussion and feel you can make a contribution, confine your statements to the point of the discussion. Although class participation is encouraged, that participation should be relevant.

Third, if shyness is a problem, start by asking questions that you have thought out before class began. Once you feel comfortable with that level of participation, move on to volunteering to answer questions that draw on material that you know well.

Fourth, summarize class discussions for your notes. Sometimes a class discussion will continue for a long period of time without there seeming to be any single major point made. However, a summary statement might indicate that
more progress was made than you actually thought was the case. Forcing yourself to summarize discussion from time to time is a device to keep you on top of what is going on in class.

Getting the Most Out of Class: REVIEW

If class becomes an isolated experience that relates neither to what came before it nor after it, then much of the benefit from the meeting of student, instructor, and subject matter is lost. A review of class notes may identify areas that were not fully understood, may serve to clarify inaccurate or poorly written notes, and will provide another opportunity to integrate the class material with the assigned readings. Also, the student should occasionally look at the notes for several successive classes in order to identify themes that might not have been evident when experiencing each class separately.

EPILOGUE: MUSINGS UNDER THE OAK TREE

Frequently we see individual courses as being self-contained experiences that related to nothing more than the final examination for each course. Somehow even humanities courses sometimes don't seem to relate to the essential human character of either the students or their world. An English instructor from my undergraduate days brought this point home to me. As finals week approached during my freshman year, my classmates and I were caught in a panic just thinking about studying for the exam for a course in the ancient classic masterworks. We had covered so much territory in one semester.

Professor King gave us the following advice:

"Class, you have done your work throughout the semester. You had to do it in order to keep up with your written assignments. As a result, none of you should have to cover any new ground when studying for the final.
would advise you to head for an attractive grove of trees. Find an oak that is particularly inspiring in size and shape. Sit down under that tree and relax. Think back over the course and recall as many striking ideas as you can. Think of what you've learned about what it is that makes man human. What have you discovered about the rules of inquiry and reason? What understandings have you gained about yourself and the world you face? And then you can drift off to sleep in the May sun, comfortable in knowing that the ancient classics are a part of you."
Dear Anxious Student:

Just as my letter to you about planning your time began with an exhortation to avoid by all means doing what I did as an undergraduate, my advice about essay writing has to begin the same way. As I told you, because I was very anxious to do well and look good, my essay assignments terrified me. The more anxious I was, the longer I would procrastinate. I would find myself writing the essay due at 9 a.m. Monday at midnight on Sunday. I would be nervously, physically, and mentally exhausted, and far too anxious and weary to plan in advance what I was about to write. I would stare at the blank page until I began putting down the first thing that came into my head, hoping against hope that it made more sense than I feared.
It never did.

After two years of dismal grades I came to these conclusions:

1. I should never leave an essay till the last minute.

2. I should never rely on instant inspiration.

3. I should never write without some form of prewriting.

A. PREWRITING TAKE-HOME ESSAYS

Most of us think of the writing process as being a single, spontaneous process in which one simultaneously thinks of ideas, puts them into sentences and paragraphs, and gets the grammar, punctuation and spelling 98% correct. One gives the piece a quick proof-reading, and that's it.

I know, and have known, many professional writers, and not one of them writes like that. The final copy is the culmination of several previous stages. Edward P.J. Corbett, in The Little Rhetoric, puts it this way:

The really hard part of the writing process is, paradoxically enough, the prewriting stage -- all those things you have to do before you put a single word down on paper. But if you do a thorough job in the prewriting stage, you will find that writing the paper becomes, if not easy, certainly easier.

There are several forms of prewriting -- not just one:

Brainstorming

Meditation

Free-writing

Outlining
You must work your way to a prewriting strategy which suits you. The secret is simply common sense: before you write, think about your audience, and what you want to say to them. Leave your concern about grammar, punctuation, and spelling to later stages. Don't try to combine all the writing processes in one.

As an illustration of one of these prewriting strategies, let me share with you the thought processes of what I am writing now (for the others I mentioned, read a good writing handbook). I was asked to contribute an article on writing essays for a handbook for the Dimensions of Liberal Education course. Almost at once, I scribbled down some ideas in my memo book (without which, as I told you, I cannot function). I used the Who? What? When? Where? Why? How? method. Here are my notes:

Who? College freshmen with not much H.S. writing experience other than book reports. (Tim, Mike, Tobi, Cindy, etc. Focus on them).


When? Essays out of class, essays in class? Exam essays?

Why? The problem -- most think that essay writing is one hit-or-miss process -- everything at once. That's nonsense.


How? Write the article as A Letter to an Anxious Student -- same with article on planning.
I wrote down these ideas in 30 minutes as I had my coffee. No problem. In this way I overcame my anxiety about writing the particular assignment -- for make no mistake: the blank page is always about as attractive as the vacant dentist's chair before your checkup. Then I translated my notes into a simple outline:

**Introduction:** Tell Anxious Student what not to do: What I did at their stage. Then what to do.

**Body:** How to use one of the prewriting strategies.

**Conclusion:** Sum up.

I used the idea of writing the article as a letter to specific students who have problems with essays. I wrote a first draft and edited it. Then I wrote a second draft, had a friend suggest some improvements, and then thoroughly proof-read it before sending it to the typist. After the typist's draft, I checked it again for errors,
Let me add a few notes on prewriting and planning. You must begin with your audience and what you have to say to them. I suggest you avoid writing for your English professor, because that will inhibit you. It's more sensible to imagine your audience to be your peer, or an intelligent younger brother or sister. You must feel in command of your material; you must feel more knowledgeable than your audience, even if that isn't the case. If you feel more ignorant than your audience, the assignment will ride you, instead of your riding it.

The introduction should be no problem. Its function is to get your audience to read your essay by explaining to them as effectively as possible the scope of your topic and your purpose. Most teachers will do the same thing at the start of every course, and at the beginning of each class. Committee chairpersons do the same when they introduce the agenda for the meeting.

The development of the body is the expansion of your topic, with supporting details -- illustrations, contrasts and comparisons, examples, statistics.

In the conclusion you sum up, repeating the major points.

Of course this is an over-simplification of a process with many variants. My point is that the basic structure of your essay should be governed by common sense.

B. WRITING ESSAY EXAMINATIONS:

Usually you don't have time for writing a first draft which you edit for a good copy, but spontaneous answering is not effective either. I recommend a form of brainstorming -- maybe a variation of the Who? What? Where?, etc. What does the question mean? What must a first-class answer cover? What does the examiner want? What major points can I make?
You can scribble one-word answers to these questions to insure you use the essentials of what you know in response to the examiner's question.

I caution you to avoid relying on the Thesis, substantiation, restatement of thesis organization to which so many students are accustomed.

1. An exam essay question is likely to be a problem to be discussed thoughtfully rather than a simple question which can be answered with a flat statement.

2. Exam essays from their nature demand that you think them over carefully before arriving at a conclusion. The conclusion might make a thesis statement for a further essay, but you can't come to a reasonable conclusion before you have weighed the evidence.

I suggest you treat most exam essays in the manner of a jury trying a court case, or a doctor diagnosing an ailment, or yourself systematically investigating the failure of your car to start: From question, to evidence, to summary.

You might well begin with generalizations that are obviously true, then narrow your answer down by turning a possible thesis statement into a question which you consider carefully in the course of your discussion.

C. EDITING AND PROOF-READING:

Like most of us, you want to get your assignment over with as soon as possible, but a rush job on the final stages of writing is a mistake. If you try to do everything at once, you will make a mess of the whole thing.

1. Read what you have written aloud for sense.

2. Read it aloud again, focusing on the grammar.
3. Read it aloud again, focusing on the punctuation. Mostly the punctuation should merely mark the pauses and inflections of your reading; a few usages you may have to check in the grammar handbook. If you have severe problems with grammar and punctuation, you should go to the Learning Skills Center, and proof-read your work under the eye of experts.

4. Look up every word about which you are doubtful in a dictionary.

D. Last Words to the Anxious Student.

"One gives nothing so freely as advice," the Duc De La Rochefoucauld remarks in his Les Maximes. First, remember that, and ask your teachers intelligent questions. Most of us are in the job because we love giving advice.

Second, if you have problems with essay writing or with grammar, punctuation, and spelling, don't cop out. Take writing courses to learn how to overcome your weaknesses. Get expert help from the kindly and patient experts in The Learning Skills Center, which is housed in The Student Center for Academic Services. I know of a student whose rough draft of a research essay was at best a D; he spent his spare time during two or three days going over his rough copy in The Learning Skills Center, and earned in the end an A from one of the toughest teachers on campus. The telephone number of the Center is 395 - 2293.

Write on!

Peter Marchant
Testing is one of the chief means used to determine a student's knowledge, understanding, and skill in a subject. It is an opportunity to demonstrate what you know to both your professor and yourself. If you honestly follow the advice presented throughout this book on how to use effective strategies for studying, then testing can be a positive experience for you and your instructor, provided you know how to take tests. This all begins with carefully reading the directions, which is the subject of the first part of this chapter.

By way of introduction, take the following test, then check the tips appearing after it. The test is one to determine your ability to accurately read and follow test directions. The lack of such ability is the major reason for poor test performance.
TEST OF DIRECTIONS

Directions: Take a separate piece of paper and number from 1 to 6. Before responding, read all the questions carefully in order, noting what each asks of you. You will have one and one half minutes to complete this test.

T F 1. You should never look over the whole test before you begin the first section because this will waste valuable time.

T F 2. Many times the clue to an objective question lies in the use of qualifying words such as "all" and "never".

3. If an essay question asks you to evaluate your reasons for your answer, you are expected to:
   A. Discuss: Talk over from various points of view
   B. Describe: Give an account of or tell about the information
   C. Differentiate: Describe differences
   D. Justify: Give the good points and bad ones about the information
   E. All of the above

4. Which of the following should not be considered in choosing the correct answer to a multiple choice question?
   A. The key words of the question
   B. The grammatical structure of the choices
   C. The elimination of any answers you know are wrong
   D. Misspelling in the answer choices

5. A good test taking strategy is to:
   A. Go for the most points in the least amount of time
   B. Begin with the first question on a test and answer each one in order, taking time to figure out ones you are unsure of
   C. Change items when you are looking over your completed test if another answer seems more correct
   D. Fill in all remaining answers if you run out of time using the same number or letter for each because you'll have a 25% to 50% chance of getting them correct

6. Do not answer any of these questions now. The rest of this chapter will provide you with the knowledge necessary to answer these questions. When you finish studying the chapter, take the test for real. The answers are on page 279. The explanations are the subject of the rest of this chapter.
If you followed the test directions exactly, you did not attempt to answer any questions because you read each question in order before answering any one of the items and thus got the point in number 6. But, if you did not follow the directions exactly, then this first section on "following directions" will be especially important to your future - not only at Brockport, but whenever you are faced with testing. (Remember, many careers have standardized tests as prerequisites, regardless of your educational background).

The Importance of Following Directions

Research done at the University of Chicago revealed that the most common characteristic of poor test takers was their tendency to misread directions and questions. This means that even though they really had studied the material, the poor test takers made errors related to the directions, which from the graders' point of view did not look any different than the poor test results of students who had not learned the material.

The following tips should help you to avoid the frustrations of low scores due to failure to read and follow directions.

Tips on Following Directions

1. **When possible, become familiar with test directions ahead of time.** Standardized tests (like those used for college and job applications) usually have practice booklets to help you become familiar with the specific task you will be asked to accomplish.

2. **Pay particular attention to the parts of the directions which will determine how you must take the test.** Note the time limit and schedule your work on the test's sections accordingly. Put the most time into the sections worth the most points.
3. Know what aids (textbooks, notes, slide rules, scrap paper, etc.) are permitted.

4. Pay attention to the order in which you must answer the questions. If there is a special order, you will be most apt to do well if you take the test in the sequence indicated. When there are no restrictions on the order of answers, work first on those questions for which you are likely to earn the most points.

5. Be sure that you answer the exact number of questions required. Do not waste time on ones that will not even be counted. If the test says "answer three of the following," you will not earn extra credit by doing four. You will lose credit if you do not have enough time to do well on all four.

6. Know exactly what kind of answer you must give. Do you need to show your work or only the correct answer? Are you supposed to circle, underline, write the correct answer or letter? Do you have to correct false statements to make them true, or just indicate that they are false? Can matching items be used more than once?

7. If practice questions are given (usually only on standardized tests), take them seriously. This is your chance to check your understanding of the test directions.

8. You should keep the test directions in mind and not let the questions guide the answer you choose, for example:

A popular intercollegiate Brockport College sport:

(a) wrestling (c) hockey (e) rugby
(b) soccer (d) basketball

This item could have come from a test in which the directions were: "Each of the following items contains four correct and one incorrect answer. Choose the one that is not correct."
Brockport has intercollegiate teams for "a" through "d" but does not have an intercollegiate rugby team. If you had not kept these directions in mind, you would probably have chosen "a" through "d" which would not have answered the question.

As another example, you could have this kind of question:

Electricity is conducted by wood. An electric current can be conducted through a wooden desk that is not grounded. T F

If a student answers this question without reading the directions, he will be in trouble if the directions say to "answer the question based on the assumption that the first statement is true." Thus, though wood does not conduct electricity, the answer here is true.

Tests measuring reasoning ability as opposed to factual knowledge often use this type of test item. (Some "clever" professors do, too).

The Importance of Reading the Question

Carefully reading the questions themselves is also crucial to successful test-taking. How many times have you had a test returned and been totally surprised by errors in answers you were certain you had correct? The following tips provide clues to help you interpret questions correctly.

Tips on Reading the Questions

1. Ask for help on unclear questions. Although students cannot receive assistance in interpreting questions on standardized tests, there is no rule that an instructor cannot assist students with interpreting questions on his own classroom tests (unless he states otherwise). Even the most experienced instructor and test maker is likely to create some ambiguous items.
Therefore, it is reasonable for you to ask for clarification if you really see that there are two or more equally possible interpretations. After all, the worst that can happen is that the instructor will refuse to answer. But, if the instructor suggests you do not have a valid point, you should probably reconsider your reason for your question and re-examine the test item.

2. Read each question as it actually is, not as you think it is. We so often see what we want to see -- especially when the material seems familiar -- that we can easily jump to a false conclusion. Make certain to read each question all the way through and keep it firmly in mind before looking for the answer. Do not always expect to find the same questions as were asked in class or in the text. Good instructors are interested in your ability to integrate material and not just to memorize it, so they often test your ability to use concepts differently from the way they were emphasized in the class or in the text. Remember what was said in the chapter "Thinking About Thinking": "Recognition memory seldom is useful, because information that is only slightly different (but wrong) may look as familiar as the correct information."

3. Read and carefully consider the implications of key terms in the questions. Key terms in the question guide you to the precise and accurate interpretation of the question, and the desired response. This point is particularly important for essay test questions.

Essay questions are not invitations to just gush out all the facts you know about a topic. They test your ability to use the knowledge you have. Thus, good answers to essay questions depend partly on your understanding of the meanings of those words that direct how you are to use the factual knowledge you have gained from your studying. Directive words such as "compare," "contrast," "explain," and "describe," each indicate a particular way for you to present the
material. Obviously, your factual knowledge of the subject is essential; but you must do more than just give evidence that you know the facts. You must use your knowledge to complete a particular task. If you are asked to "compare Russian, Chinese, and Yugoslavian forms of Communism," you will receive little credit if you simply describe them. Instead you must indicate how and why they are similar and different and perhaps even describe the implications of these similarities and differences. If you are asked to "criticize" the present welfare system, you are not accomplishing the specified task if you just explain how it operates. You need to give your opinion or judgement on the subject as well as justify and support it. An essay response is acceptable only if it performs the actual task asked on the question.

The terms in the right hand column of Table 1 are frequently used in essay exams. Here they are arranged in categories which represent the least to the most complex type of essay response. You should study the type of answer that is required for each general category and then learn the specific terms which are used to signal a test taker to produce the type of answer needed for each general task category. For instance, if a professor wants to see if you know the specific details associated with a particular topic, he will phrase the question to ask you to provide a "description" and his question will probably contain one of the following specific terms which you should recognize as your signal to "tell about a specific topic with a certain amount of detail": "describe, discuss, review, summarize, diagram, illustrate, sketch, develop, outline, or trace." You should learn the general categories in Table 1, the type of answer needed, and be able to respond to the specific "terms" in relation to the appropriate "task category."
<table>
<thead>
<tr>
<th>GENERAL CATEGORY OF TASK TO BE PERFORMED</th>
<th>TYPE OF ANSWER NEEDED</th>
<th>EXAMPLES OF SPECIFIC TERMS USED IN EXAMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDENTIFICATION</td>
<td>present the bare facts: a name, a phrase, a date; in short, provide a concise answer</td>
<td>cite, define, enumerate, give, identify, indicate, list, mention, name, state</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>tell about a specific topic with a certain amount of detail</td>
<td>describe, discuss, review, summarize, diagram, illustrate, sketch, develop, outline, trace</td>
</tr>
<tr>
<td>RELATION</td>
<td>describe the similarities, differences or associations between two or more subjects</td>
<td>analyze, compare, contrast, differentiate, distinguish, relate</td>
</tr>
<tr>
<td>DEMONSTRATION</td>
<td>show (not state) why something is true or false. Put forth logical evidence or argument to support a specific statement</td>
<td>demonstrate, explain why, prove, justify, show, support</td>
</tr>
<tr>
<td>EVALUATION</td>
<td>give your opinion or judgment on a subject plus justify and support it. Also, if your opinion can be challenged, be sure to present both sides.</td>
<td>assess, comment, criticize, evaluate, interpret, propose</td>
</tr>
</tbody>
</table>

TAKING ESSAY TESTS

For some reason, many students have a real fear of taking essay tests. However, when you properly prepare for an essay examination and follow the tips in this section, you should find that an essay test has benefits that objective tests never do. First, on an essay exam you are allowed some freedom to choose the specific material which you will include. Thus, the omission of a few particular details is not so devastating as when you are faced with specific objective test items for which you have forgotten the correct answers. Second, you often have a choice among the questions to be answered and this allows you to highlight your areas of expertise and to avoid areas of weakness. Also to your favor is the fact that most essay questions allow you to show your higher level thinking skills (application, analysis, synthesis, and evaluation) instead of merely your recall ability. You have a much better chance of really communicating your understanding of the content in an essay test than you do in many objective tests.

Another benefit of essay tests is that you can usually predict quite accurately the essay questions which will be asked so you can thoroughly prepare and rehearse appropriate answers ahead of time. Finally, your written presentation of the material, if it is neat and clear, can favorably incline a professor's reading and grading of your test.

The key to preparing for essay examinations is, of course, to study well. This, as has already been pointed out, requires your active involvement with your reading and notes. Since an essay question will usually ask you to do more than just cite or define a few concepts in a few sentences, you need to have consciously applied the higher level thinking skills to the material you study.
Tips for Preparing for an Essay Exam

1. **Make a list of the ten questions most likely to be asked** (topics stressed in class, in the text and teacher's review). Make sure you focus each question with one of the key question words. (See "The Vocabulary of Test-taking.")

2. **Prepare comprehensive outlines** that focus on handling the particular task (comparing, evaluating, applying, etc.)

3. **Learn definitions of key terms** which might be necessary to include in your answer. If you have been marking your text and notes well to locate these key definitions, this task will be easy for you.

4. **Practice preparing opening sentences.** A strong and well organized beginning demonstrates your careful study and preparation.

5. **Likewise, practice concluding or summary statements** so that your whole essay will be framed in a sense of overall competence.

6. **Practice condensing relevant supporting information.** Make it brief, concise, to the point, and be sure to use your own words which will demonstrate your learning of the material, not just the process of rote memorization.

For example, in the chapter "Thinking About Thinking," there are a couple of pages devoted to explaining the advantages of using information networks to learn course materials as opposed to using lists. A wise test taker may anticipate that he might be asked to describe these advantages, as well as to explain how to create effective networks when studying. He might prepare for this task by effectively condensing the key concepts involved into concise sentences.
Example:

Advantages of forming networks

1. access of information in a network is not dependent upon remembering one or two key words
2. a network provides many associations for each item. These relate it to each of the other items involved in the concept so that access to the information can begin at any of several points

Methods of creating networks while studying

1. integrate effective marginal notes in the text with those taken in class
2. identify key concepts and outline their relationships to each other

Tips on Taking the Test

1. Before even reading the test questions, jot down some facts and formulas you have memorized on the back of the question sheet. Do this before reading the questions to prevent mental blocking and to gain a sense of confidence and control. Allow yourself two or three minutes to do this.

2. When you receive the test, quickly glance through the questions and jot down (in the margin) the points you will want to cover. Reading each question first may help you in thinking over some of them, perhaps subconsciously, even while you are answering others. Also, since our minds follow chains of associations, ideas we have at the beginning of an examination may become lost if we do not write them down. Finally, these jottings can serve as the framework for your answers. Allow another two or three minutes for this step also.

3. Read the questions carefully and be certain you know what is involved. Pick out the words which you will need to define or clarify in pro-
FIGURE 1
An Example of How to Read an Essay Question

THE QUESTION (Before and after marking by the student)

Explain what is meant by active listening and then describe what a student needs to do to prepare to be an ACTIVE LISTENER in class and discuss what he/she specifically needs to do in class as an ACTIVE LISTENER. Why is it important for students to develop the habit of active listening?

1. [Explain] what is meant by [active listening] and then [describe] what a student [needs to do to prepare to be an ACTIVE LISTENER in class and discuss what he/she specifically needs to do in class] as an ACTIVE LISTENER.
2. Why is it [important] for students [to develop] the habit of active listening?

STUDENT'S MARGINAL NOTES (To prepare to answer question)

1. actively thinking about what is said — increased learning, decreased boredom
2. keep up on readings review notes on hand outs, guess at key issues to be covered give examples
3. relate to what is known — find structure — hidden assumptions — evaluate evidence
4. aids learning, interest relationships
viding your responses and those which will need to be identified with specific information. Know what the question words require you to do (that is, evaluate, justify, analyze, compare). Number the different parts of the question to which you must individually respond.

Examine the example of an essay question in Figure 1 which has the task words in brackets, the key terms needing identification or clarification circled, and the student's marginal notes listed. (Note, the numbers were added by the test taker to insure answering each part of the question).

4. If more than a paragraph response is required, add to your outline and establish your order or organization. Asterisk your main points and then number them according to where they should be developed within your essay. Use a "1a," "1b," "1c" to designate the points to be used in support of your first main idea and "2a," "2b," "2c" for those supporting the second main idea and so forth.

When you have completed your rough outline, then begin to write your answer following the organization and ideas of your outline. Students who write poor essays usually do so because they fail to plan their answers. They just jump right into the question and then find themselves leaving out key information or emphasizing minor points to the exclusion of major ones. It is usually too late to get back to the main point when they come to the realization of what they really should have been writing.

5. Write your answers clearly and concisely. You need to expand your outline with relevant facts and details, avoiding irrelevant but related information and lengthy digressions.
First, include a direct answer in your opening. For the question in Figure 1, this might be:

"Active listening is actively thinking about what is being said and creating relationships among the facts presented, rather than passively receiving the facts and not trying to use them immediately. Active listening is an important habit for students to acquire because it will aid their learning and heighten their interest in their classes."

Second, use all subsequent paragraphs to support the points made in the first paragraph. You do this by giving specific details and clearly stating relationships, causes, and effects. Thus, for the preceding essay question, you would follow the opening paragraph with one that expands the definition of active listening by providing several examples of what active listening is as opposed to passive listening. Next, you should write a paragraph which specifically explains how a student can prepare to be an active listener. The notes jotted in the margin of the test question sheet should be expanded upon for each supporting paragraph. Examples discussing the need to keep up on reading, to review notes and handouts prior to a lecture, and to anticipate issues likely to be covered in the lecture would all be included in this second paragraph.

The next section of your essay would explain what a student should do in class to ensure active listening. For instance, one example which you might include could point out how relating a lecture on the process of photosynthesis to one's previous knowledge of the plants in his backyard would make the lecture more relevant and interesting, and therefore, easier to follow. Finally, your last paragraph should provide the reader with specific reasons that explain why active listening is an important skill for a student to acquire.
The third step in writing clear and concise essays is to **strive for clarity**. Use the verbal **SIGNPOSTS** mentioned in the chapter "GOING TO CLASS... BEING THERE IS NOT ENOUGH" to guide your professor through your answer. If you are to contrast two concepts, use terms like, "on the other hand," "however," and "on the contrary." If you are to demonstrate cause and effect, use words like "consequently," "because," and "therefore." (See the list of Transitional Expressions in Table 2.)

Do not pad your answers the way a person who is bluffing usually does. And do not scatter your facts and details throughout the essay without having them arranged in useful order. If you are well prepared, then following the above steps will help you convey to your professor the message that you are prepared.

6. **If you are running out of time, make sure to at least write an outline answer to every question.** Even with the best management plan, you can sometimes find yourself with more to do than time will allow. If you use good outline form to indicate your sense of the answer required and clearly list your supporting details for each main point, you are much more apt to receive some credit than if you do nothing or gush out a garbled answer.

7. **Make certain your writing can be read.** Do not scribble or cram so many words on a line that your answers, even if correct, are illegible. Imagine how difficult it must be for a professor to read forty or fifty exams by as many different hands. Give yourself and your instructor a break. Leave ample margins. Double space if your writing tends to blur together, and make certain your individual letters can be read. Most graders do not give students the benefit of the doubt if they cannot make out what is said. In fact, they may become exasperated and feel that the student did not even really try. The result could be a lower grade than the answer, if legible, would have merited.
<table>
<thead>
<tr>
<th>Intention or Relationship</th>
<th>Transitional Words and Expressions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amplification</td>
<td>for example, in other words, that is</td>
</tr>
<tr>
<td>Cause and Effect</td>
<td>accordingly, because, consequently, for this reason, hence, since, thus, therefore, if...then</td>
</tr>
<tr>
<td>Concession</td>
<td>accepting the data, granted that, of course</td>
</tr>
<tr>
<td>Contrast or Change</td>
<td>in another sense, but, conversely, despite, however, nevertheless, on the contrary, on the other hand, still, though, yet</td>
</tr>
<tr>
<td>No Change</td>
<td>similarly, moreover, also, too, in addition, likewise, next in importance</td>
</tr>
<tr>
<td>Emphasis</td>
<td>add this, besides, in addition to this, even more, to repeat, above all, indeed, more important</td>
</tr>
<tr>
<td>Equal Value</td>
<td>at the same time, likewise, similarly</td>
</tr>
<tr>
<td>Increasing Quantity</td>
<td>also, besides, furthermore, in addition, moreover, too</td>
</tr>
<tr>
<td>Order</td>
<td>first, finally, last, next, second, then</td>
</tr>
<tr>
<td>Summary</td>
<td>for these reasons, in brief, in conclusion, to sum up</td>
</tr>
<tr>
<td>Time</td>
<td>then, since then, after this, thereafter, at last, at length, from now on, afterward, before, formerly, later, meanwhile, now, presently, previously, subsequently, ultimately</td>
</tr>
</tbody>
</table>

TAKING OBJECTIVE TESTS

Objective tests are typically composed of multiple choice, true-false, and matching items. Many students think that objective tests are "easier" than essay tests; but, as we already know, this may not be so. However, there is the certainty with an objective test that, when scored by any number of people who use the same answer key, the results will be the same. With an essay exam, we know that several different grades may be assigned depending upon the test evaluators' criteria.

Although objective tests used to be employed simply to measure basic recall learning, we now find that they are used to attempt to measure students' awareness of complicated relationships and their ability to solve problems.

If in the past you have had difficulty with objective item tests (especially multiple choice items), then the following tips could be of special use to you.

1. **Follow all general test-taking guidelines.** Use your time wisely. Skim through the entire test to become familiar with the type and number of questions involved. Be certain to read carefully both the directions and the questions. First, attempt all the questions in which you really feel confident, but be certain to return and attempt all the questions and take care in keeping the answers in their proper sequence on the answer sheet. And, of course, use your reasoning abilities actively. Solutions materialize only when you continuously focus on the problem using both your knowledge of content and your common sense.

2. **Choose the intended answer.** Do not misinterpret a question. If you read too much into a question you can guarantee yourself an incorrect answer. Consider the following:
"The College at Brockport is basically a Liberal Arts College. (True-False)"

Many students might insist that this statement is not entirely true, even though Brockport is generally publicized as a Liberal Arts College, because Brockport also has programs leading to certification and licensure that are not normally considered exclusively Liberal Arts. (These include nursing, education, athletic training, and others). The wise test taker would answer "true" knowing that for the particular intent of a DLE course, the focus is basically on the Liberal Arts aspects of the college experience. Note that had your DLE test maker wanted to know if you were aware that Brockport offered more than just Liberal Arts, the question might have been phrased like this:

"The College at Brockport only offers majors in the traditional Liberal Arts disciplines. (True-False)"

Here, of course, the answer is false.

3. Project the answer before you check the answer items. This prepares you to focus on the correct answer and lessens the possibility of your choosing an impostor. Consider the following:

Establishing an information network is a better way of learning than just learning lists of information because....

Here, even if you did not know the correct answer, you should anticipate that the correct one will clearly indicate how creating information networks is better than making lists. Thus, when checking answers you can eliminate options that are not important. For example:
Establishing an information network is a better way of learning than just learning lists of information because:

(a) a network does not rely on one or two key words.
(b) a network encourages students to encounter an item from a single perspective.
(c) a network involves a wealth of associations that require the rearranging and transforming of ideas.

Even if you have not yet read the chapter "Thinking About Thinking" which discusses the limitations of learning through lists (rote memorization) as opposed to learning to create networks of information which focus on the relationships between ideas, you should be able to select the correct answer.

If you anticipate that the correct choice must obviously indicate that creating a network is "better" than making lists, then you can see that (a) is a negative reason which (though it is a true statement) does not provide enough evidence to indicate why it is better. The (b) choice is too limited since common sense tells us that learning is a highly complex process and being confined to a single perception is probably not advantageous. Thus the (c) choice, which clearly offers a benefit in its "wealth of associations" that fits into our expectations about the complexity of the learning process, therefore, must be the correct answer.

4. Check over all alternatives. Even if the first answer has all the characteristics which you had anticipated of the correct answer, check over the other choices just to be certain, especially if it is a "choose the best response" multiple choice test. Because of students' tendency to grasp at the first seemingly correct answer, test makers often construct tests with the most attractive but incorrect answer first.
5. **Examine all choices in relation to the question asked.** If the anticipated answer is not among the choices given, then drop it and check to see how well each answer fits the terms of the question. If you do not let go of your anticipated answer, you endanger your effectiveness for the following reasons.

First, hanging on to the anticipated answer will increase the likelihood of your choosing an answer which seems similar but is not correct. Forcing yourself to determine if this *"look-a-like"* is the correct answer to the specific question asked should insure that you relate the options to the questions.

Next, if none of the choices seems likely, you may be tempted to mentally change one or more words in an option to make it correspond with the answer you had anticipated. Never read in words. Rather, test each real option against the real question.

Third, if you consider the answers without continuously relating them to the question (as asked), you are in danger of choosing a response which is correct in itself, but incorrect as it relates to the question. It is possible that all answers are correct statements, but only one will be the correct answer to the question asked. For example:

The major disadvantage of using lists to learn your college material is:

- (a) most college work cannot be organized into lists
- (b) there is a lack of meaningful relationships among items in a list
- (c) the key words for lists can easily be forgotten and then the information cannot be retrieved from memory

Since "a" and "c" are true, many students would narrow their attention to these, probably choosing "c" because the words "key words," "forget-
ten," "retrieved," and "memory" all pertain to effective learning. However, this narrowing of attention is like "tunnel vision." To avoid this danger, remember never to deal with options in isolation. The correct answer is "b" since it responds to the "major" disadvantage as discussed in "Thinking About Thinking."

Finally, just as correct statements can be wrong answers to some questions, so can wrong statements be correct answers to other questions. "Memorizing lists of information is an effective study technique" is an incorrect statement, but it is the correct answer to the following question: "Most beginning college students have difficulty with studying because they believe that...." This example illustrates again the need continually to relate the choices to the question.

6. Weigh the choices against each other. When several choices appear correct, or even if none seem correct, compare them with each other. If two options seem similar, examine them closely to find what makes them different. For example:

Modularization of a concept is mainly the result of:

(a) focusing a lot of attention upon the act of remembering.
(b) refining key features from a concept so that extraneous features serve as a guide to remembering.
(c) refining irrelevant features out of a concept so that a clearly defined entity remains.
(d) using superfluous activities to guide memory strengthening.

Most students would probably eliminate options "a" and "d" as unlikely answers, leaving both "b" and "c" for further consideration. Options "b" and "c" are similar in that they both deal with the act of "refining features." But they are different in that "b" asserts that key
features are filtered out to aid in remembering, a most unlikely choice when one considers all the attention to the use of key features in aiding the memory process that we have presented in this and other chapters. "c" points out that the irrelevant or extraneous features are culled out leaving only the meaningful essence of the concept and, therefore, it is the correct choice.

7. Apply logical reasoning. If you recognize that two or more options are correct and one of the remaining options encompasses both of these, then always choose the more encompassing option. For example:

Which of the following thinking skills are listed in Bloom's "Categories of Thinking Skills":

(a) Analysis          (c) Synthesis
(b) Application       (d) All of the above
                   (e) None of the above

In the chapter "Thinking About Thinking" there is a list of "Bloom's Categories for Thinking Skills" which lists the following categories: knowledge, comprehension, application, analysis, synthesis, and evaluation.

The test-wise student who remembered that "analysis" and "application" were two of Bloom's categories, but who could not remember about "synthesis" would automatically choose the encompassing answer, "d" "All of the above."

8. Plug in information gained from other questions and answers. Teacher made tests often contain useful information in other questions or options which will aid you in responding to some of the questions asked. Thus, if the example in point seven (7) above appeared in a test which also asked the following:
Who created a model of Thinking Skills:

(a) Dr. Mayer  (b) Dr. Humm  
(c) Dr. Bloom  (d) Dr. Freud

You should, of course, choose item "c" since the answer has been revealed in a previous question. Though the test maker usually tries to avoid such occurrences, you should realize that you can benefit from information provided at different points of the test.

9. Use specific determiners to guide your choice.

Exact Terms: "all," "always," "never," "must," "necessarily," "no-none," and "without exception" are all terms which mean zero percent or 100 percent of the time. Thus, a statement to which there can be a single exception cannot be true if one of these words is contained in it.

Qualifying Terms: "rarely," "hardly ever," "seldom," "infrequently," "some," "sometimes," "usually," "often," "frequently," and "almost always" are words which are often used to qualify the main statement in questions or answers. Since so many statements have exceptions, true statements often contain qualifying words and false ones often do not. But do not depend upon this technique because experienced test makers mix up their items so some statements with qualifiers are false and some without them are correct.

10. If you do not know the answer, guess only if your chances of gaining points are greater than your chances of losing points. If there is no penalty for guessing on your objective tests and if you have applied all the other techniques, then a guess may just yield another point or two. But do not expect that relying on guessing will pay off in passing grades.
11. **Do not rely on flaws in the construction of the test.** Nothing is as effective as having good study habits and effective test taking techniques. Relying on flaws or cues could, (1) take time away from working on the test in a straightforward manner; (2) be less profitable than if you answer based on your knowledge of the content; (3) establish bad test taking habits which would work against you on the major tests of national reputation which are designed by experts in the field of testing and evaluation.

However, on a poorly constructed test the correct option will generally, but not always, show these characteristics:

a. **Length:** It will be longer than the incorrect options.
b. **Qualification:** It will be qualified to give it precision.
c. **Generalization:** It will be generalized to give it wider application than the incorrect options.
d. **Physical Position:** It will not be the first or last option.
e. **Logical Position:** It will not be one of the extremes of a set of options which can be put in some natural order.
f. **Similarity or Oppositeness:** It will be one of two similar statements, or it will be one of two options which state the idea or fact diametrically opposite.
g. **Phraseology:** It will be in a sentence bearing familiar or stereotyped phraseology.
h. **Language:** It will not contain language or technical terms which you are not expected to know.
i. **Grammar:** It will be a grammatically perfect extension of the question itself.
j. **Emotive Words:** It will not contain such extreme words as "nonsense," "foolhardy," or "harebrained."
k. **Silly Ideas:** It will not be a flippant remark or a completely unreasonable statement.

Never answer on the basis of these clues when you have any other reason to believe that one option is most likely to be correct.*2

12. **Do not change test answers unless you are certain that the new choice is correct.**

Research has demonstrated that when students change their initial responses to test questions, more than fifty percent of their second choices are incorrect. Unless you have found information in another part of the test which clearly indicates another choice, or you have definitely remembered specific information which required a change in your answer, you are better off leaving your original answer, according to the odds.

**SELF EVALUATION:**

*When the Test Results Are In*

Monday Morning Quarterbacking

1. Look over the returned exam and locate your strengths and weaknesses.
2. This is a non-crisis time which you can use to engrave the correct information in your memory.
3. Focus your attention on what miscued you so you will be more conscious of such possibilities during the next exam.
4. Be sure you find out and understand the correct answer. You need to know how to correct your mistakes and why they were mistakes.
5. Analyze your errors for patterns and then consciously prepare for the next exam with this in mind.
Monday Morning Quarterbacking sometimes has an additional benefit in that you might discover an error in grading which could significantly alter your final score. But never try to bully your way to a better grade. Remember, professors can make mistakes too, so be courteous in pointing them out.

Now with your test-taking skills at their peak, why not actually try to answer the questions in the "Test of Directions" at the beginning of this chapter - at least, disregard #6 and answer #1 through #5.

(Answers: 1. F; 2. T; 3. d; 4. d; 5. a)