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ABSTRACT

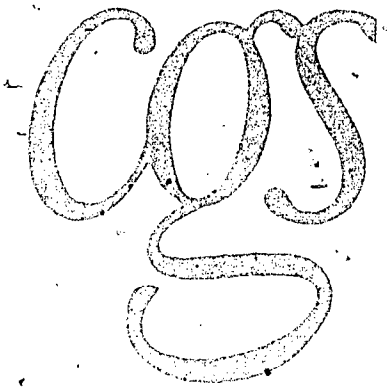
The national investment in graduate education is addressed in proceedings of the 1982 meeting of the Council of Graduate Schools in the United States (CGS). Proceedings of the CGS business meeting are also included. The keynote address by Howard R. Bowen, "Educational Possibilities for Our Grandchildren," is provided. Transcripts of the conference sessions are presented, including the following: "Investing in Graduate Education--Who Invests: Who Benefits?"; "Industry/University Cooperative Programs: Strengthening the Relationships"; "Opportunities for Women Graduate Students"; "The Graduate School and Teacher Preparation: What Are the Graduate Schools Doing to Improve Teacher Preparation?"; "What Appears on the Horizon for Graduate Education of Minorities?"; "International Education: What Are the Issues?"; "Professional Graduate Programs/Degrees?"; "Closing Pandora's Box: The Research Library in the Year 2000"; "An Assessment of Research Doctorate Programs in the U.S. Sponsored by the Conference Board of Associated Research Councils (Discussion of Report)"; "Master's of Liberal Arts Programs/Master's Degrees Institutions"; "Graduate Education in the Humanities: Some Options for the Future"; "Science, Technology, and the Humanities"; "Financing Graduate Education"; and "Graduate Programs in Biomedical Sciences." (SW)

Proceedings of the Twenty-Second Annual Meeting

COUNCIL OF GRADUATE SCHOOLS IN THE UNITED STATES

THEME:

GRADUATE EDUCATION: A NATIONAL INVESTMENT IN KNOWLEDGE



December 1-3, 1982
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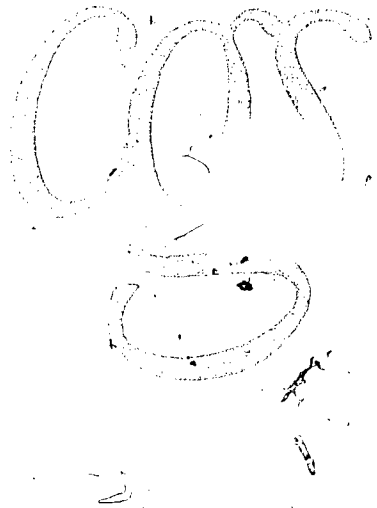

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The Council of Graduate Schools Board of Directors in session before the start of the annual meeting.

All photographs in the Proceedings *are by Merna Foss Pelczar.*

Discussing the *National Center for Atmospheric Research: A Case History in Graduate Studies and Research is* Wilmot Hess, National Center for Atmospheric Research.

A view of the audience at a plenary session.

Discussing *Legal Issues in Graduate Education is* Virginia B. Nordby, Executive Assistant to the President and Director of Affirmative Action, University of Michigan.

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Keynote Address

Wednesday, December 1, 1982, 9:10 a.m.

EDUCATIONAL POSSIBILITIES FOR OUR GRANDCHILDREN

Presiding: W. Dexter Whitehead, *University of Virginia*
Speaker: Howard R. Bowen, *R. Stanton Avery Professor of Economics and Education*
Claremont Graduate School

Howard R. Bowen, Claremont Graduate School, *presenting the keynote address at the 22nd CGS Annual Meeting.*

Howard R. Bowen

My new book bears the ambitious title, "The State of the Nation and the Agenda for Higher Education." In writing it, I was swimming against the tide, because the book is about the responsibilities of American higher education in the long run, whereas most of the current discourse of education is concerned with immediate issues such as enrollment, finance, and retrenchment. I suppose my theme might be: When immediate problems are intolerable, think about the long run.

What I tried to do in the book was to review the post-war history of the nation, to identify the success and the problems, and to sketch out the possible role of higher education in grappling with these problems.

I approached these tasks without conscious preconceptions. I simply let the conclusions and recommendations flow from my analysis, and I was as surprised as anyone by the results. I'll try to give you some glimpses of what I found.

Let me first tell you about my findings on the progress of the United States between 1950 and 1980. We are constantly being told by the pundits of press and television, and by the political leaders of both parties, that the nation is in dire straits. Apparently there are bigger headlines and more votes in bad news than in good news. These dismal voices imply, among other things, that the growth of higher education that has taken place since World War II, beginning with the GI Bill, has been a failure, and that generous support of higher education has proved to be an unaffordable extravagance.

As I reflected on these allegations, I decided that the facts I knew, and the conditions I saw everywhere around me, simply did not justify such gloomy analyses and forecasts. And so I put on my economist's hat and made my own assessment of the progress of the nation over the past 30 years.

Of course I don't have time today to recite all the details or to document my findings. But the gist of what I found is very simple and I can be brief. Let me begin with the remarkable *economic* achievements covering the period from 1950 to 1980:

- Production, per capita (after adjustment for inflation) nearly doubled. Remember, America had already become a very prosperous nation by 1950, the base year.
- Forty million new jobs were created, an increase of 64 percent in total employment.
- The average standard of living of the American people, by any known measure, doubled.
- Working conditions improved: hours of labor declined, job satisfaction was at consistently high level, the proportion of the labor force in strenuous or unpleasant manual labor declined sharply and the proportion in white collar occupations increased.

These are only a *few* indications of economic progress. But an observant person would not need any more statistical indicators to realize that the country has made enormous gains over the past thirty years. One need only observe the millions of cars, the multitude of household appliances, the elaborate clothing and jewelry, the beverages, the gambling at Las Vegas and elsewhere, the Christmas shopping, the expensive vacations, the thousands of luxurious hotels and restaurants, the spectator sports, the elaborate recreations, the numbers traveling abroad, etc., to realize that America is *filthy rich*. Yet the country has been run as though further growth in material production of consumer goods and armaments are the only worthwhile goals;

more fundamental human objectives are expected to bear the brunt of the effort to stop inflation. These policies have ushered in a devastating depression.

Let me now turn to some social indicators that reflect the tremendous progress of the nation in human terms over the past thirty years. These I regard as at least as important as the economic indicators.

- The distribution of income among families has become significantly more equitable and the incidence of poverty has declined sharply.
- Important new beginnings have been made in the conservation of natural resources and the protection of the air, water, and land.
- The average length of life has increased by five years, and the general health of the people has improved.
- Our society has become demonstrably more humane as reflected in the rising support for health care, income maintenance, education at all levels, and other human services.
- The arts, science, and technology have all flourished.
- The nation has made a forward thrust in the status and welfare of women and of minority groups.
- Human freedom has been expanded, human rights have been extended, and workers and consumers have been given new protections from accidents and from dangerous or noxious products.
- The nation has made some great one-time achievements; for example, it launched the Marshall Plan and restored democracy to Japan. It overcame polio, invented the computer, harnessed nuclear energy, and developed molecular biology. And perhaps most dramatic of all, it landed on the moon and explored space.

These were on the whole fantastic gains and should arouse second thoughts among those who see the state of America darkly and view the future with apprehension. The rate of improvement may not have been equal to the potentialities, and some of the changes may be controversial, but the performance of the nation has been by any count remarkable—especially when it is considered that it had already been very well off—both economically and socially—in the base year, 1950.

I would remind you that scarcely any item in the long list of achievements would have been attainable without the immense development in higher education that occurred during the post-war period. Higher education provided the educated people necessary to achieve almost all of these gains, and it provided much of the essential basic research. Perhaps more important, our colleges and universities were centers radiating the values and the motives that underlay the great social achievements of the post-war era.

I am not saying that there were no setbacks. Indeed, during the post-war years, a series of disturbing events or conditions undoubtedly contributed to the rather depressed outlook of the American people. I refer to the assassinations, the Viet Nam war, Watergate, and the Iranian hostage crisis. I regard these not as parts of a basic trend but rather as a series of unique and unpre-

dictable events or as critical mistakes in policy. One hopes that episodes like these are now behind us even though some scars remain.

To recite the achievements of the past three decades is not to imply that the nation is today without serious problems. There are always problems. In the rest of my talk, I propose to identify these problems and to consider their implications for higher education. The problems I shall mention may surprise you. They are not the ones ordinarily cited. They fall into four overlapping categories.

First, there is a set of problems all of which stem from moral failure. I refer to the unseemly pursuit of self-interest or failure of social responsibility. Self-centeredness is the source of our inflation. Inflation arises because every group in society tries to extract more from the economy than it is capable of delivering. Businessmen want bigger profits, labor wants higher wages, consumers want bigger incomes, and agencies want bigger budgets, and all try to elbow their way to bigger shares. Similarly, the deterioration of our environment arises because each of us cares about our own needs and comforts more than we care about the public welfare in our own generation or about the welfare of future generations. The domination of our government by narrow and grasping pressure groups—with their lobbying, propaganda, and campaign contributions—is a product of the rampant self-interest that motivates our politics. The constant threat of war is based on the same tendencies on a world-wide scale. The problems that derive from immoderate self-interest call for reorientation of our educational system toward the fundamental ideal of social responsibility. Our educational institutions, of course, consist not only of universities and colleges; they include also the family, the church, the school, the press, TV, and even the workplace. But of these, the universities and colleges are perhaps in the best position to take the initiative in education for social responsibility. They educate virtually all our leaders, they train almost all our teachers, counselors, journalists, clergymen, and businessmen; they write most of our books; they conduct most of our philosophical and religious inquiry and our social criticism; and in many subtle ways they shape our culture. And perhaps more important, they have intensive contacts with nearly half of each age cohort of the population.

It is no new idea that higher education should be involved in the education of a socially responsible citizenry and leadership. If one examines statements about the purposes of higher education from Plato to John Dewey or Robert Hutchins, social responsibility is a persistent theme. In recent decades, however, the idea that social responsibility is a goal of higher education has become lost; the leaders of higher education have become increasingly preoccupied with positive knowledge and technical skill and less involved with values. This has been due in part to the explosion of knowledge and the proliferation of new technology; it has been due in part to the interests of government in producing specialized "manpower"; it has been due also to the de-

mand of students and their parents for a college education that leads to jobs, and to the morbid fear of academic people that enrollments will decline if they do not accede to extreme vocational demands. I believe that generally, throughout our nation, education has neglected its obligation to help produce the socially responsible citizenry which the America of today so desperately needs.

Education for social responsibility is not an easy task. There is much yet to be learned about it. It certainly involves the curriculum. Perhaps even more it involves the content and the perspective of individual courses in both general and professional education. But education toward social responsibility is also influenced by the kinds of people who make up the faculty, and the cultural and social environment and the traditions of the campus community. Moreover, education for social responsibility is a goal that will not be imposed on us from the outside. In fact, the pressures from outside are overwhelmingly directed toward technical proficiency and maximum earnings. Greater attention to social responsibility will require our own initiative. Because the task is difficult, however, does not make it less important or less urgent. Helping to create a more socially responsible nation is surely one of the major challenges before higher education.

A second set of problems [illegible] relates to youth. For example, unemployment is primarily a problem of youth. Except in times of general economic depression, most of the unemployment of the nation is concentrated among young people. In normal times, the official unemployment rate for men of ages 16 to 19 averages about 14 percent, whereas for those 20 and over the rate is around 3 percent. But if one includes in youth unemployment those persons who are neither in the labor force nor in school, the percentage rises to about 25 percent for men and 18 percent for women. Similarly, crime is basically a youth problem. Most crimes are committed by youths or by people who began a life of crime when they were young. The drug problem is of the same type. The data on youthful alcoholism are frightening. And so on.

The nation has drifted into an unsatisfactory pattern in the rearing of its children. The extent of neglect is so evident and widespread as to suggest that children in our society are no longer loved. Increasing numbers are in families where supervision and guidance is wanting. Some children are victims of physical abuse. Great numbers go to schools that don't teach. Many are relegated to unsafe slum neighborhoods or rural backwaters. Millions spend hours with the communications media, both printed and electronic, that at best neglect and at worst disseminate vulgar material, values, and violence. The results of these conditions are intolerance, illiteracy, distorted values, illegitimacy, crime, drug abuse, alcoholism, unemployment, mental illness, alienation, and the perpetuation of these same conditions in succeeding generations. The Carnegie Council on Policy Studies in Higher Education has estimated that 14 percent of all persons of age 16 to 21 are seriously disadvantaged in

one way or another. This 47 percent represents 12 million young persons, a number about equal to the entire enrollment of all the universities and colleges in the country.

The youth who are especially affected by the obvious weak points in our society are on the whole not the ones who are students in our colleges and universities (though almost everyone is to some degree affected by the trends I am describing). College students are mostly the lucky ones who were protected by family, school, church, and other influences and escaped some of the dangers of youth in America. But a mere recital of the glaring problems that many young people encounter suggests that contemporary America is not a hospitable place for children and youth. One could hardly make a harsher condemnation of any society.

Higher education, as the premier youth institution of our society, has a deep responsibility to take leadership in ameliorating the problems of youth in America. I do not pretend that to solve the youth problems of America will be easy or that higher education has the sole responsibility for solving them, but I believe higher education has an important role. The objectives are clear. Our colleges and universities should motivate and train people to serve effectively in professional capacities relating to schools, families, churches, employers, the military, and other institutions relating to youth. Our institutions of higher education should increase their commitment to research and development on youth problems, including demonstration programs and projects, and they should conduct public service or extension programs to assist schools and other community institutions. They should also provide educational programs and materials useful to families, neighborhood groups, employers, and the general public, and they should facilitate the admission to college of disadvantaged youth by learning to provide more effective remedial programs. The excellent report of the Ford Foundation's Commission on Higher Education of the Minorities, issued in January, is directly relevant to what I am advocating.

The proposals I am making hark back to the early days of agricultural training, research, and extension, and also to the beginnings a few years ago of urban extension. The need for training, research, and public service in the youth field is no less than it was a century ago in the agricultural field. The task is enormous, progress is bound to be slow, but it is time to get started.

A third problem, closely related to the other two, is the handicap that millions of people suffer because of sheer ignorance. Since Colonial days, we have been widening education by including more people, and deepening it by extending it over more years. During the past generation, we have been concentrating especially on the expansion of secondary and higher education. The ultimate goal is *a nation of educated people*. This goal is based on the belief that the potential of our society and of our culture can only be realized when everyone is well educated to the limits of his capacity and when no one is held down or left out because of lack of educational opportunity. We are still a long

way from the goal of a nation of educated people. Today, only about 17 percent of our adult population are college graduates, and I am not claiming that all of them are well educated. But the sad fact is that at the other end of the spectrum, according to reliable studies, about a third of our people are at an educational level that borders on illiteracy and on inability to cope with the daily requirements of life in a modern industrialized society.

No one knows what percentage of the population would be educable at the college level if environmental limitations related to family background, neighborhoods, schools, and the like were ameliorated. But it is clear that enormous expansion of youth enrollments would be possible over time. Again I refer to the findings of the Ford Foundation Commission. Consider also that there are more than 100 million adults aged 25 and over who have not graduated from college, and 80 million who have never been to college. Each one percent increase in adult college attendance would add about a million to present enrollments of 12 million. Adult learners are of special importance because if they could be educated in large numbers the time required to achieve a nation of educated people would be greatly shortened.

I do not hold that in the foreseeable future all the people will be well educated. But it is likely over the next several generations that the barriers of limited cultural background, deplorable schooling, inadequate financial means, and weak incentives could be surmounted to the extent that at least half of the people could become well educated. It would seem therefore to be an obligation of the nation, and particularly of the higher education system, to salvage the vast amounts of wasted potential ability. And this should be done of course without neglecting the discovery and nurturing of exceptional talent.

Some interested attendees discussion with Dr. Bowen after his address.

Finally, a fourth problem facing our nation is the most disturbing of all. It is the continual and growing threat of war and the critical need for international understanding and reconciliation. This is a problem that the academic community can scarcely solve single-handedly. But it can help. The university almost by definition is a cosmopolitan institution. Its traditional ethos calls for it to radiate knowledge to all the world and to be receptive to knowledge from all sources. Knowledge is not the preserve of any single people or area, but is universal. The traditional devotion of the university to humane learning conditions it to be a partisan of world peace. The universities, therefore, are among the principal agencies through which any nation achieves understanding and rapport with the peoples of the world. They serve in this capacity in several ways:

- Academic people the world over are closely and continuously linked through research and scholarship. This linkage occurs through the exchange of publications, and also through innumerable personal contacts among scientists and scholars as they correspond and as they meet in international gatherings and in private encounters.

  Colleges and universities throughout the world are involved in international exchanges of students and faculty.
- Colleges and universities train most of the [illegible] journalists and businessmen—those professional workers who require knowledge of foreign peoples and governments and involves international contacts.
- Nations depend on their academic scholars for much of their understanding of the history, culture, languages, economies, and geography of other countries. Many universities support scholars who are specialists in particular foreign areas and some maintain interdisciplinary institutes or "area studies" programs for research on particular areas of the world.
- Colleges and universities carry on programs of technical assistance to other countries in fields such as agriculture, health, resource development, and education. And they supply trained staff for technical assistance conducted by government, business, or other agencies.

American higher education has long served in these ways, and has regularly facilitated communication and understanding between America and the other nations of the world. These activities go on year in and year out. As a result, at any given time there are many thousands, perhaps millions, of Americans who have during their lives been in touch with foreign research and scholarship, have worked abroad under academic auspices, have studied or taught abroad, or otherwise have gained knowledge and understanding of foreign countries. And there are comparable numbers of foreigners who have had similar contacts with the United States. Both sides in these interchanges have on the whole achieved a deeper understanding and a keener appreciation of one or more foreign countries than would otherwise have been possible.

There is another academic function that may be more important to interna-

tional reconciliation than the others combined: namely, the teaching of the rank and file of American students about the nations and peoples of the world—helping them to gain perspective on the world about them, to achieve understanding and appreciation of other peoples, to form some conception of world problems and dilemmas, and to acquire a cosmopolitan outlook. A relevant education for people who will live in the dangerous 21st century should not neglect to prepare them for world citizenship. An appropriate education for them, as Stephen Bailey has reminded us, is one that reaches out for friends in the vast threatening environment that surrounds us.

American higher education has of course long been concerned with international education. But its scope has been quite limited. It has concentrated largely on the antecedents of American Culture. The study of subjects such as Western European history or Western European languages have been taught more as a foundation for the understanding of the American heritage than as the basis of a cosmopolitan or world outlook. Contact with the history, cultures, and languages of Eastern Europe, the Middle East, Africa, the Far East, or even Latin America has been sparse. Many institutions have indeed offered courses in international politics, international economics, studies of particular foreign areas, and the like. Also, many institutions have generated extracurricular programs relating to world affairs, for example, public lectures, chapel programs, international relations clubs, and pacifist activities. Yet, on the whole, the efforts to reach out beyond America have been feeble and student participation has been minimal. Indeed, in recent years the situation has deteriorated as foreign language teaching has diminished, and as vocational subjects have increasingly dominated the curricula. There is a great need for rethinking and replanning the international outreach of our universities and colleges.

Now for some concluding comments. I have led you through my thinking about the major problems of contemporary America and their possible implications for the agenda of higher education. The four areas I have identified relate to social irresponsibility, the plight of youth, widespread ignorance, and the threat of war. Others, going through the same process I followed, might hit upon other social problems or might classify them in different ways. In particular, others might have given more attention to preparing people for the age of high tech—to use one of the contemporary buzz words. I left this out simply because I think the forces of the market are amply strong to prepare us for the age of computers, robots, and the like. You will notice, however, that the problems I see most clearly are all *human* problems. One of my nagging concerns is that in the present mood of the nation attention is being directed to narrowly materialistic economic goals and to military preparedness and away from human goals related to the development of our people, the enrichment of our culture, and world order. It is of course necessary to keep the economy running, to curb inflation, to provide for national defense, and to do other pressing and practical things. But to achieve these ends, it is not necessary in rich America to neglect the goals of human development and

human well-being, and in the process to undo the remarkable progress of the post-war era. Especially is this so when it is realized that the United States has one of the lowest overall tax burdens of all the advanced industrial countries of the world. The policy of the present administration in Washington of reducing taxes and increasing defense spending has already been proved bankrupt. This policy could only turn back the social progress of a whole generation and is not resolved to achieve the objective of overcoming inflation. But the moods of a society change. We have already seen that policies that are extreme in one direction almost inevitably produce reactions.

The basic point of my remarks is simply that there is much urgent educational work to be done in our society. It is not precisely the kind of work we are accustomed to, and it will take time and effort to adjust to the new challenges. It will also require time and effort to enlist public support. What is needed in higher education today is a realization that we are probably reaching the limits in the expansion of the kinds of research and instruction that began at the end of World War II. Without abandoning our present position, we must proceed to new frontiers. These new frontiers are just as urgent and just as challenging as those we articulated at the end of World War II. But to exploit the new opportunities is going to take imaginative planning, willingness to change, and especially patient cultivation of public support. In my thinking the problems of the future will require relatively more demonstration and public service than has been customary. I think the land grant model of practical research combined with public service, but applied to human development rather than agriculture, may be the pattern of the future.

Now for a concluding comment. Higher education may be in for some hard times. Whatever the situation may be, we educators have a sacred obligation. It is to keep learning alive in America. To do so may take some sacrifices and some extra work. What I mean is that our primary tasks of teaching, research, and scholarship must go on regardless of the financial situation, regardless of deteriorating public attitudes toward higher education, regardless of the crass careerism that presses on higher education today, and regardless of misguided public policies. I am not suggesting that we abandon or dilute our primary functions. Rather I am suggesting that we carry out these functions with attention to the great human problems and needs of our time.

Plenary Session I

Wednesday, December 1, 1982, 10:45 a.m.

INVESTING IN GRADUATE EDUCATION—WHO INVESTS? WHO BENEFITS?

Moderator: Donald J. White, *Boston College*
Panel: Robert Andringa, *Executive Director, Education Commission of the States*
David Padwa, *Chairman of the Board, Agrigenetics Corporation*
Harrison Shull, *Chancellor, University of Colorado, Boulder*
Ufda Wilson, *Associate Vice Chancellor for Research and Associate Dean, The Graduate College, University of Illinois*

Robert Andringa

The challenge of the panel this morning is to replicate in some fashion the stimulating conversation we had over breakfast. My role on the panel is to reflect on some current trends and some of the perceptions of state, political, and education leaders who make up the constituency of ECS. As a society, we have been content to live with a notion that graduate education is good, and that more of it is therefore better. Most Americans would look back, as did Howard Bowen earlier this morning, and feel genuine pride in our graduate and professional education institutions.

But times are changing and I would like to make five points about the State scene. 1) Non-educators feel very comfortable making education decisions, especially for those levels they have experienced personally. Everyone is an expert on elementary and secondary education and a majority of legislators feel increasingly confident about passing judgment on undergraduate education. Much of the mysticism surrounding graduate and professional schools is fading now as more policy makers either have experience at the graduate level or know someone else who has. So the future will bring a closer scrutiny by the outside managers of public resources than has been the case in the past. 2) At this point in time, State leaders are so preoccupied with major fiscal and other problems that graduate education is very low on their priority lists. Not many feel it needs the same attention as more pressing issues, even those surrounding other levels of education. This is both good news and bad news for graduate school deans—good news if you are basically happy with slowly declining resources and bad news if you want to make the case for substantial new investments for programs. To get new money today, in most states you need to visit the State House with far better cost data than is typically available, and

The panel addressing the question: Investing in Graduate Education—Who Invests? Who Benefits? (from left) David Padwa, Agrigenetics Corporation; *Robert Andringa,* Education Commission of the States; *Linda Wilson,* University of Illinois; *moderator Donald J. White,* Boston College; *Harrison Shull,* University of Colorado, Boulder. *Joining in was Howard R. Bowen,* Claremont Graduate School, *who had presented the keynote address.*

you will need to demonstrate that the increased investments will have a direct and positive impact on the State's economic development strategies. 3) Universities recently have focused more attention on Washington than their state capitals when it comes to research and graduate education. Most state leaders support a strong federal role in graduate education, but the evidence all points to a decreasing or a far more targeted role for the federal government. It would be prudent, therefore, especially for deans and those in this room to begin a much better education process for their state legislative leaders and governors' offices. 4) State leaders are aware that the nation is less dependent on universities for high-level post-baccalaureate education and training than in the past. These people, for the most part, have visited sophisticated corporate laboratories. They have interacted with more Ph.D.'s outside of the university than on the campus. They have observed the application of new technologies to deliver educational experiences and are questioning how much advanced learning should be dependent on publicly subsidized campuses in the future. As corporations do more of their own sophisticated training, the question will take on more importance. Some policy leaders are even questioning how dominant the universities should be in carrying out parts of the nation's research agenda. These are new questions that academic leaders must help address. 5) Many state leaders are giving more attention to the quantity and comparative quality of individual graduate programs in their state. There is a feeling that the proliferation of graduate programs over the past few decades was not all good. Perhaps we should focus more dollars on fewer campuses at the graduate level. There is also the feeling that some graduate programs are more worthy of public subsidy than others. There are difficult trade-offs. For example: Do we really need to subsidize the huge number of law students in the country if that is done at the expense of training

more science and math teachers for the public schools. The financial plights of most states require these kinds of trade-offs. Most people expect this will be the case for some years to come.

To summarize, graduate education decision making will be moving from the relatively-safe shadows of the ivy-covered walls on the campus to the more visible chambers of legislative halls throughout the country. Americans, generally, are proud of our educational graduate systems and have no strong negative views they are currently pushing on their elected leaders. But times are tough and choices are difficult. Graduate deans and university presidents will be asked to defend in much greater detail requests for investments from every source of revenue and to describe more specifically who really benefits from those investments in light of other social needs crying out for attention. It will be a different arena for many graduate school leaders. For most of you, it already is. The consolation is that you will find much company out there because almost every other sector dependent on government policy is also adjusting to the new rules of the same arena.

Harrison Shull

It is a pleasure to be here again to join the graduate deans. It has been ten years since I was one of you, and just ten years ago you were discussing exactly the same topics as we are today. Although time passes, the questions remain the same. The question itself has rather interesting implications. It does not ask what are the costs of graduate education and who pays the costs. It asks who invests in graduate education and who benefits from that investment.

The cost question is not an easy one to answer, as all of you know. There has been no simple, satisfying way to isolate the costs of graduate education from those of research and from those of undergraduate education. There is no simple way to allocate the revenues. Depending upon which set of accountants you choose to hire or believe, it's easy to show that undergraduate education subsidizes graduate education in our research universities, and it's also easy to show the converse.

One thing is certain, however, and I think we should retain it uppermost in our minds. Research and graduate education in the United States are inseparable and should be inseparable, and that we have a fabulously successful system, the premier system in the world, of developing research scientists and scholars. I've always said that in primary and secondary education in the United States, we are far behind our international competition. In undergraduate education, we are even with others. But our graduate education is where we forge ahead. Very few other countries have found the key which is involved in that inseparable nature of our research programs and our graduate education. I would also say simultaneously that another key to which we do not give enough credit is that most of our graduate students teach as well as learn. Teaching and learning are very much one and the same. It is terribly

important that we maintain that interaction between graduate students and their students, the undergraduates at those same institutions.

The question, who invests?, implies, according to the dictionary, "with particular thought of future gain or advantage." That is what we mean by investment. To my mind there are three likely investors. The first of these is the student, the second is the educational institution and the third is the general public. Let me start by looking at the individual student because the student is the focus of much of policy making with respect to graduate education in our legislative circles and elsewhere. The idea is that somehow the students go through graduate education and, on the average, afterwards earn a considerably higher wage. They are therefore considered the investor and the beneficiary. It is certainly true that the major bearer of the cost of higher education is the student, and we ought to keep that firmly in mind. The student not only pays the tuition and has the delightful opportunity of living in poverty three, four, five, or six additional years, but gives up the opportunity of earning a decent wage for that period of time. Those opportunity costs that the students lose are far bigger than most of us realize. In fact, I can remember in my own career as a graduate student coming across some data produced by the American Chemical Society. As a chemist graduate student I concluded, that it was to my economic disadvantage to be a graduate student. That is still true today. As far as I am concerned, the economic returns of higher education beyond the bachelor's degree are probably close to zero and in some cases actually negative.

The second example of who invests possibly are the institutions themselves. The graduate deans are a part of the vested interest. In a sense we are, of course, talking to the converted as we talk to each other in these particular matters. Obviously, within the institution, faculty and staff invest through sub-standard salaries, but in recompense they also receive the benefits of the wonderful interactions that accrue to them in less tangible terms.

But after looking at those two particular groups, the only conclusion that I can draw with certainty is that the major investor who gets benefit from higher education is society itself, and that society should be the major investor and the major beneficiary. The graduate student programs that we have are unique in the world. The graduate study and research that goes on is terribly important in the whole technology transfer process. It is in times like these which are tough and difficult that we as a group can pull together and improve the system of which we are a part. At this particular time the opportunity of comparative advantage is with us, and I think we ought to be optimistic rather than pessimistic as we look ahead.

David Padwa

This morning the six people at this table had an interesting breakfast that produced a certain humility because it was clear that when you talk about

education and investments in education and economics, you're talking about a vast and complex system. Let me take a slight liberty in playing with the title of this panel, and instead of saying who invests and who benefits, focus on how to invest and how to benefit. My particular link here is obviously on the commercial and business level, and the point I'd like to make is that there are cross-benefits. The universities and business communities are looped into one another. Each is an under utilized resource from the point of view of the other and it is distinctly possible to enhance the utilization of the resource that exists in another community. The general solution is to develop what the Greeks call the polity, which is probably a form of Professor Bowen's collegiality, and to realize that we live in the same country, in the same society, that we are part of the same community, and that we should reduce some of the suspicion, even hostility, which has sometimes existed between university and business communities, and certainly not to disembowel ourselves as we have done from time to time. One of the major problems when looking at this kind of issue is a pervasive illiteracy about business and corporations, particularly in the academic community, and this leads to negative attitudes which immediately generates its reciprocal. We find very commonly that university people who can talk very intelligently about education, the MX missile system, nutrition policies, computers, feedbacks, etc., all become somewhat tongue tied when they try to talk about business. I wonder how many people in this room really understand the difference between gross profit and operating income, how to compute bottoming basis, and look at variable costs, analyze net discounted cash flow, etc. The answer is definitely not that we need more business and accounting majors. In fact, I would suggest to you that some of our most enlightened attitudes come from liberal arts majors because these are people who have a very general curiousity about the world and they tend to pick up these vocabularies rather easily. The answer I'm searching for is an answer that relates to attitude. We have to retool our attitudes a bit. This is particularly important for this community and this audience. In my opinion, the business community is the logical lobbying tool to legislators for higher education. The business community is the best boat rocker you have around today, and yet it hasn't been excited to do that job. But if it were ever geared up to do it, it could be very powerful because it is that community which lobbies legislators at the state, federal, and municipal level all the time. It won't happen however, unless there is a creative, constructive, and healthy attitude from the other community. Business likes to see people who understand the significance of value adding mechanisms, which is to say who understand the commercial implications of actions. If some of you don't like the word profit, if some of your students think profit is a dirty word, you can explain to them that the Russians use the word but they call it surplus. Non-profit institutions can run a surplus, and that surplus is another way of saying that you have a system that is trying to optimize something and is trying to add value. It is on the value adding nature of the activity that people have to focus, because that is

what this real world is about. Knowledge is the revolutionary force in the world—not the working class. As we make the transition from smoke-stack industries into an era of knowledge industries, the revolutionary nature of knowledge will become apparent to all of us. This means that increasingly our two communities are going to have to learn how to need one another and also how to work together. Knowledge is the value-adding phenomenon. Everybody can claim some share of and some benefit in that added value. University-industry relations are to some extent like the dog and the hydrant, but there are some specific things we could do to get our act together. We've got to use our knowledge better, we've got to distinguish the difference between prudent defense and military insanity—we have to develop this polity.

Linda Wilson

It is a privilege for me to be with you [illegible] today result not just from my duties at the University of Illinois but also from membership on the National Academy Committee which for the last year and a half has been studying the government university relationship and some of the problems plaguing it. I shall share with you some observations that have been influenced by that committee discussion. The NAS committee has been reviewing the history of the development of the government university relationship and in so doing has examined the way in which graduate education has been financed.

The American system of coupling performance of research and graduate education in universities for the conduct of a substantial fraction of its basic research has been enormously productive. That productivity must be viewed in terms of both products of that system, that is, not only the research results and the advancements in knowledge but also, and terribly importantly, the scientists, the engineers, the scholars, and the educators that our institutions have produced. The system of financing that graduate education and the development of the institutional capacity to provide for it is a major accomplishment of this country. The system required decades to build, had no single architect, no single patron. Nor has the underlying national policy been explicit, unequivocal, or unchallenged.

The goals, however, have been reasonably clear. Democracy is predicated on an educated electorate. That is a very long-term, nonspecific value is to be derived. National defense, welfare, health, and the economic base of the country depend on the scientific and technological strength and achievement—a somewhat more specific set of values to be derived. Furthermore, we have also had multiple subsidiary goals. For example: equality of access especially for the economically disadvantaged and minorities; the attraction of the best and the brightest to advanced scholarship; geographical distribution for this education; excellence; efficiency and economy in education; and assurance of institutional capacity.

What has evolved to address these major goals and subsidiary goals is a pluralistic, un-coordinated, not terribly well understood system involving multiple investors, multiple beneficiaries, and multiple mechanisms. The students, the parents, the educational institutions, federal and state government, and the private sector are the investors and the fellowships, training grants, loans, subsidies, assistantships, family contributions, in-school earnings, etc., are the various mechanisms. What we have is a system which is not and cannot be static. It is constantly adjusting and responding to shifting priorities in resource allocations, shifting personal choices, and changing opportunities. The system is not centrally managed or directed. It strongly reflects the flexibility and freedom upon which our national enterprise is based.

The effective and efficient implementation of our multiple goals is difficult to accomplish in this multifaceted system. The pluralism of our system for graduate education financing is a real strength but it has consequences that must be dealt with. In particular its complexity means that few (some would question if any) comprehend the whole system. It is vulnerable to unintended consequences of change. Diffusely shared responsibility can become no one's responsibility. That sharing of responsibility can undermine the commitment of the various investors as they fail to perceive the value of their own role. Changes in some facets of the system can yield overreaction or underreaction by either investors or beneficiaries.

While the multiplicity of the mechanisms and the sources allows us to address these different and sometimes conflicting goals, the interdependency among the mechanisms and the investors and beneficiaries is a problem that has to be managed. Unfortunately our knowledge of the factors and forces that are involved in the overall system is weak. There is much we simply do not understand about the way the disparate investment strategies work. The long time that is involved in the advanced education experience exceeds the limits of our ability to project reliably either the opportunities or the needs for educated personnel. Furthermore, we are currently and perhaps from now on into the forseeable future going to have to operate much closer to the margins, with less slack in any of our systems. I submit that the price of erring on the low side of investment in graduate education is very high indeed and difficult to correct in the future. Indeed, some deficits can be irreversible. It is important therefore for us to take careful note of the indicators that we do have about this system and what it is producing. We can watch the nature and magnitude of the graduate enrollments. We can pay particular attention to the field dependency of trends and the choices that individuals are making. We can watch the distribution and the nature of the sources of the support and the length of time it takes to obtain a degree. As part of the National Academy's work we have gathered together many threads of data on just these indicators. A very curious thing that we have noticed is the fact that some of the fields in which enrollment is consistently the highest are the fields in which the federal involvement is the least. For example, the social sciences.

We need to consider the implications of the trends in these indicators. We need to develop better understanding of the links between the support source, the amount of the support, the mechanism, and the outcome; we need to understand what market forces, what incentives operate for personal choices and commitments to advanced learning and fields to pursue. Why do people not choose to go into the physical sciences when that is the field where there is the greatest federal support for graduate study? Perhaps it is inextricably linked to the problems we have in primary and secondary science and mathematics education.

We also need to continually reaffirm and interpret to our investors and our beneficiaries the basis for our national commitment to advanced education. We need to identify the rationale for the role of the various investors in graduate education and to stimulate, if not insist, that they accept their responsibility to fulfill that role.

We need to do these things to be able to adapt and constructively exploit the challenges of continuing and accelerating change. We need to do these things to cope with increasing complexity and to harness that complexity to yield benefits for our society. We need to do these things to permit both production of and acceptance of technological advances and to assure imposition of appropriate values in using them. We need to do these things to ease intercultural transactions and to raise international and inter-class tolerance.

To accomplish this, we have to be articulate, rigorous, honest, and above raw self interest. Assertions of belief without justification will not suffice.

Who is this "we" to whom I refer? It is we the graduate deans, we the parents, we the citizens, we the students. This matter of understanding, managing, interpreting the financing of graduate education is both a local matter and a national matter. I beg you, do not expect the Washington associations, the major private and public universities alone to carry this ball. It is in each of our backyards, and I think we all must set about attending to it.

Howard R. Bowen

[illegible] graduate study and research? I have never been able to answer this question beyond identifying the outcomes and asserting that they are there. Never have I been able to proceed to measure what they are. As has already been mentioned, the rate of financial return to the graduate student is relatively small. The rate of return is high for elementary education, next for secondary, next for college education, and the lowest for graduate education. Most of the returns to graduate study are in the category of social benefits and that is why measurement is so difficult. There is one other non-pecuniary return for the individual, namely, love of learning. Perhaps we underestimate that. Many people go into graduate studies simply because they are interested in their subject. But when

we talk about social benefits, they have to be "externalities" as economists use the term, namely, benefits that occur beyond the individuals involved.

One must ask, does graduate education or research produce externalities beyond those benefits which are captured by the particular persons involved? Studies of the growth of the national income in the United States clearly indicate that learning is an important factor, that one cannot explain the growth of production simply by the increase in the physical resources involved, and that it comes directly from knowledge.

For example, the social benefits of learning are illustrated by the likelihood that the presence of physicians in our society improves public health as well as the health of the particular patients receiving advice and treatment. Similarly, in a controversial, pluralistic, and litigious society like ours, a good supply of lawyers helps the nation to conduct its affairs under a rule of law. Along the same line, a large supply of scientists and scholars in a wide range of fields is essential to the advancement of the technology and of the culture.

Another social outcome is derived from the "standby effect" which is an externality. In this connection, I have often thought of an acquaintance of mine who is a long-time professor of Middle Eastern culture. During most of his career, he was regarded with mild disdain as one of those "useless intellectuals." Suddenly, with the Middle Eastern crisis, he came into great demand. His university had supported him for decades partly on the basis of his standby value. The standby function can also be illustrated by hospitals. Even if you never have to use a hospital, you would still like to have one there just in case.

Much of the work of humanists may be seen as yielding externalities. They help in the advancement of our culture (which is something different from the sum of our individual behavior patterns), in the promotion of civilized existence, and in raising the levels of morality. They enable us to learn from the experience of the race.

Comparably, the work of social scientists helps in the formation of public policy. For example, the publication of the *American Dilemma* by Gunnar Myrdal was a landmark in the drive toward racial equality in America and perhaps around the world. The writing of *The Chrysanthemum and the Sword* by Ruth Benedict was a major factor in U. S. relations with Japan during and after World War II. It is in these social results of study, scholarship, research, and graduate education that we have to find the justification of our efforts. To identify these is difficult enough, and to articulate them so that they make sense to people not directly connected with education is extraordinarily difficult. We should be redoubling efforts to communicate.

QUESTION

How can a university justify the support of individuals in esoteric fields?

David Padwa

Legislative responses are not always reasoned, and perhaps they rely on animal spirits. Linda said this morning at breakfast that many legislators feel confident to deal with issues in elementary and secondary education because they've been through that themselves, and more recently they've been feeling capable of dealing with issues in undergraduate education because probably at least half of them have an undergraduate degree now, but very few are capable of dealing with issues in higher education. I say that they may respond to pure animal forces of an effective lobbyist where votes are concerned rather than through any reasoned approach.

Robert Andringa

Right now economic development is the name of the game for almost all of the governors, and I think educators must help explain that many of the technological advances that have created jobs in a state stem from our earlier investments in higher education. There are many examples that this body could give that would be understandable if communicated. Many governors are going to other states and talking to corporate heads to try to attract plant expansion in their states and they're trying to expand primarily in businesses that require little capital investment—knowledge businesses that emerge as we move from an industrial to an information society. The corporate people ask, "Do you have the educational system that will develop people that we need to expand our industry?" Most of those questions relate to the quality of secondary schools. It is an education problem and its an understandable one by legislators and it's one that you folks really need to address. Better understanding won't happen by itself.

QUESTION

Is there any significant force in the business community that could be induced to invest in graduate research budgets?

David Padwa

The business community is heterogeneous enough that any one person cannot comment for all of it. Businesses, particularly knowledge or technology-based businesses, want to be at the forefront of science, particularly when we have something which has been called a paradigm shift where the state of the art is moving very rapidly. The only way a business can do this is by investing, in a broad sense of the word, with universities, particularly research universities. From time to time because of the nature of attitudes between the two communities, business shrugs its shoulders and handles the situation 100% in-house, and not just because of proprietary factors. There are other elements, too. The state of the art sometimes shifts into a business and corporate

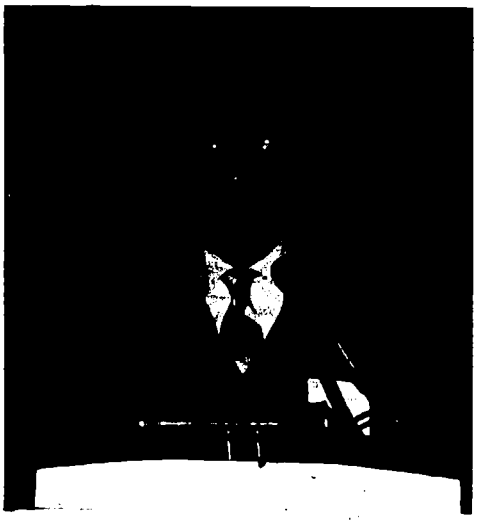
context, as in areas of chemical engineering and electrical engineering. In cases where there are breakthroughs in science, you must focus at the university community. And if the university community is not an active participant in the process, it may simply pass that torch onto another sector of society. I would think there would be a great deal of support from all segments of the business community, particularly science-related businesses, to increase tax advantage. A lot more could be done and there are many imaginative approaches. If we reversed the tax credit applicable to business-funded graduate research and had a 200% credit for research that was externally funded at universities, I think you would see a significant shift in behavior.

QUESTION/STATEMENT

Two weeks ago, I was at a meeting in Washington, D.C., for research administrators. There I heard a representative of DOD present a research story. We should all be on guard against catch phrases and words. Much of the time was spent by that person—in good faith, I am sure—underscoring the basic research that was coming out of DOD. They have heard some of what we have said and agencies in Washington and other places are borrowing these phrases to sell whatever particular point they have in terms of funds for research. We must be sure to keep that basic research idea, whatever field and mode. We've mentioned the elementary—secondary; we've mentioned the research institutions. There is a vast number of people who are interested in advanced study at perhaps a lesser level than the Ph.D. Industry and business are to a considerable degree subsidizing our part-time graduate students at the master's level. The students need that help and support to become applicators of knowledge, to be active in social organizations. I would hope in our thrust on basic research, which I put at the top, that we not forget this other vast group who need support also.

David Padwa

Just one comment to put some of these remarks in perspective. As I understand it, the current tab for corporate-sponsored research in a university setting is about $260 million a year, which represents only about four percent of the total university research budget in the United States. This is a comparatively recent high because the number has been as low as two percent. Even if you doubled the amount of funding, you'd go only about four to eight percent of total university based R&D.



Luncheon, speaker, Arnold Weber, President, *University of Colorado*, addressing the topic of *Graduate Professional Education*.

Time to talk with fellow attendees while awaiting the start of the next session.

Concurrent Sessions

Wednesday, December 1, 1982, 2:00 p.m.

I. INDUSTRY/UNIVERSITY COOPERATIVE PROGRAMS: STRENGTHENING THE RELATIONSHIPS

Presiding: L. Evans Roth, *University of Tennessee*
Presenter: John H. Sanders, *Vice President, Eastman Kodak Company*
On Golden Eggs

Panel members discussing *Industry/University Cooperative Programs: Strengthening the Relationships*, chaired by L. Evans Roth, University of Tennessee (second right), were Cornelius W. Pettinga, Eli Lilly; John H. Sanders, Eastman Kodak Company, and David Padwa, Agrigenetics Corporation.

John H. Sanders

I welcome the opportunity to talk with you today, for I believe it's important that those of us in business and industry maintain a close relationship with you in higher education. We in the Eastman Kodak organization have long been active in our support of colleges and universities. Our founder, George Eastman, contributed millions to higher education. In the past 27 years, Eastman Kodak has contributed more than $80 million to higher education throughout America.

I'm sure you're all familiar with the story of the goose that laid the golden egg. Most of us have dreamed about having a source like that mystical bird to pr[illegible] us with unlimited riches.

We all realize, however, that such creatures are confined to the pages of fiction, and that in the real world it takes more than dreams to be successful.

Golden eggs characterize certain periods in public perception of higher education. For many years, education could do little wrong. Citizens who refused to support other programs through tax increases voted in favor of referenda supporting education. Higher education, in particular, became the idol of many Americans. It was assumed that anyone who earned a college diploma was a guaranteed success.

Somewhere along the line the golden egg began to crack as higher education came under increasingly frequent attacks. Each interest group had its set of problems for universities.

In the midst of the turmoil, Dr. Clark Kerr was asked about the problems confronting him as a university president. He summarized them as: sex for students ... athletics for alumni ... and parking for faculty.

I'll leave those problems of higher education for you to solve and confine my remarks to areas about which I'm a bit more familiar.

This afternoon I want to examine briefly the close relationship maintained by education and industry throughout recent decades. Industry has often looked upon colleges and universities as geese that lay golden eggs in the form of eager, ambitious, intelligent, and resourceful graduates. Colleges and universities have sought golden eggs from industry in the form of research, endowment, and scholarship grants.

We've developed intertwining relationships in which we're mutually dependent upon one another. Communication is essential to make these alliances flower. Opportunities to interact—like our meeting here today—are necessary if industry is to communicate its needs to you and for you to communicate your needs to us.

Finley Peter Dunne, in *Colleges and Degrees*, wrote this: "Do you think that colleges have much to do with the progress of the world?" asked Mr. Hennessy. "Do you think," said Mr. Dooley, " 'tis the mill that makes the water run?" George Eastman said it more directly when he stated, "The future of the world depends almost entirely upon education."

We in industry look to you in academia to provide people that can lead us into the 21st century. You're our continuing source for engineers, accountants, social scientists, mathematicians, laboratory scientists, and all the other professionals that must be educated in colleges and universities. Without you, business and industry would quickly find a dwindling supply of fertile minds necessary to create systems, research new ideas and concepts, and manage our operations.

Today, I want to center my remarks on three points. First, fresh eggs are the best eggs. Second, eggs unwilling to hatch don't become chickens, and finally, eggs must interact in order to make an omelet.

The ivy-covered image of colleges and universities often creates a sense of value for higher education. We somehow attach the impression of quality to

those institutions who have been around long enough to have ivy-covered walls. While the ivy may be both attractive and nostalgic, it doesn't by itself represent quality in education. Older, established programs are often among the better ones. It's not the age of the educational program, however, but its content, that is judged by industry. Established programs are not the best simply because they're old. That's why the Eastman Chemicals Division recruits at the University of Missouri-Rolla as well as at colleges that might be better known.

It's fresh eggs that grocery shoppers seek. As a result, many of you are engaged continually in a technique we in the chemical industry call process improvement to keep your curricula relevant. Industry looks carefully at various educational programs. Personnel departments don't hesitate to drop a college or university from their recruiting lists if evidence indicates a decline in quality or a change they think would result in graduates not being prepared to meet the needs of their companies.

We expect new employees to be competent in knowledge of their major fields so I won't spend time on that point. I do urge you to plan curricula that look beyond the classroom walls. A student of history has not gained the full measure of education if he or she cannot apply that knowledge today. Likewise, engineering students must know about practical applications.

For example, most chemical engineering schools teach students how to manufacture chemicals by the batch method. This involves loading the equipment, running the process batchwise until it's complete, and then measuring yields and results. Repeating the process will provide another run. However, today, companies manufacture most chemicals by the continuous process which requires different engineering techniques not required in the batch method. While it's costly, colleges which give training in continuous processing techniques provide their graduates with an advantage in the employment marketplace.

Don't stop with theory. Encourage students to develop practical application skills in their chosen fields. As you plan for the future and work to keep your offerings fresh, stress quality over quantity. If it comes to a choice of having a lot of average engineers or a limited number of engineers with superior education, I prefer smaller numbers with emphasis on quality in basic academic backgrounds.

Today's economic climate forces us to look carefully at ourselves. You've done a good job of teaching economics. It's now time to apply the laws of supply and demand to higher education. I'm aware that while enrollments for engineering and other technical fields are on the increase, the number of professors in those fields has not kept pace. As a result, there's a shortage of professors in some technical disciplines.

Higher salaries in government and industry often attract undergraduate students which means a lower percentage of engineering majors pursuing graduate study. Of those students in graduate school, most are in M.S. pro-

grams. In 1972, the number of Ph.D graduates in engineering was about 3,800. In 1980, that number had dropped to 2,600.

In that same time span, the number of B.S. engineering graduates rose from 41,000 to 60,000, with the number of engineering professors remaining about constant.

What higher education is experiencing, then, is a classic case of increasing demand for a decreasing supply of professors in specific technical areas. In industry we would turn attention to increasing salaries for those positions in demand. Industry pays employees in certain disciplines higher salaries than they do employees in other disciplines, and it's accepted as a fact of corporate life. If you want the best people for your faculties, you've got to pay them. Universities already pay law professors and doctors in medical schools higher salaries. Why not consider similar higher scales for professors in short supply.

We must look at ways to upgrade the equipment in your labs, for that has a direct effect upon the quality of education your students receive and the extramural funds you attract. It's been only in the last few years that some textile schools, for example, switched from spinning cotton on outdated equipment and began using cotton and polyester blends that are so common in industry. Graduates experienced in working with modern equipment have an advantage over those who were dependent upon antiquated college laboratories. I'm aware that it will require billions to equip all colleges with modern equipment, but I also know that those institutions willing to do so will provide more realistic programs for their students.

After you've built a program that's fresh as today's eggs, turn your attention to your students. Without proper fertilization and development, eggs don't become chickens (or geese, or turkeys).

Too many graduates don't grasp the fact that diplomas are only tickets to careers, not the train rides. They're surprised to find extensive training programs in industry. They don't realize their education didn't stop when they left the college campus.

Breadth of education is important if the employee is to exist successfully in the corporate community. I fear that many students are pursuing too narrow educational paths. Interdisciplinary studies—especially at the undergraduate level—provide students greater appreciation for others with whom they will work.

At Tennessee Eastman Company we're building a new plant that will manufacture chemicals from coal. Though the plant is a chemical operation, personnel involved in the various phases of development include a broad spectrum of academic disciplines. Chemical engineers are designing and improving processes. Mechanical engineers designed equipment in conjunction with electrical engineers to make the plant function. Civil engineers, architects, draftsmen, and other design specialists are involved in construction. Accountants and others from financial disciplines have projected the economics of the

plant and its products. Biochemists and environmental specialists have worked on waste disposal considerations. Communication professionals have written speeches and articles to explain this pioneering plant to the public. Countless research scientists were involved in preliminary work. Computer specialists have programmed equipment to ensure that production meets our requirements. Each of these people has had to communicate with professionals in other disciplines.

Employees who understand the business side of industry as well as their own area of expertise *are a valuable asset*. A brilliant theoretical discovery may never be economically feasible to scale up to manufacturing production levels. Industry needs people who understand the economics of research. Likewise, we need skilled science majors who can market products and technology. Clearly, these needs require cross-disciplinary education.

Student eggs must be taught there is life beyond the shell. Many of our field representatives are chemical engineering graduates. Upon appointment to marketing positions, they participate in extensive training programs. We want our sales people to understand business and economics, as well as engineering. Previous educational background in business and marketing is quite useful to them. We're looking for people willing to expand and grow—people not content to remain in one cubicle for their entire careers.

This leads to the point that eggs must interact to make an omelet. Without interaction you would have eggs and the individual ingredients but no omelet. Interdependence, whether at the institutional or individual level, is a fact of life.

Interdependence requires communication, and that is an area where many students are deficient. They're not comfortable—and are often incompetent—in oral communication. The use of grammar is at times horrendous. Very often, employees are guilty of a failure to listen. I'm sure you have had similar experiences with your students. Impress upon them the importance of good written and oral communication skills and listening. Be good stewards with resources entrusted to you. It's valid for higher education to seek increased support from business and industry. It's a part of our interdependent relationship. We expect it.

Be aware, however, that companies are looking more carefully at all types of support to ensure that their gifts are being used wisely. That puts added pressure on you to manage gifts wisely and report your success to contributors.

On the corporate side, philanthropy is considered a business investment to be managed in a businesslike manner. Few companies are content to contribute monies without regard to the ways in which those funds are used. The Eastman Kodak Companies attempt to direct our contributions activities in the same way we manage our other business endeavors.

The business we run places Kodak among the top 30 FORTUNE companies. The size of the business we manage in corporate contributions puts us

among the top 15 companies nationwide. Our priorities are clear: we see management's first responsibility as maintaining the economic health of the business enterprise.

At the same time, as a former CEO at Kodak said it, "The corporation that is not in the business of human development may not be in any business—at least not for long." That's why Eastman Kodak and many other corporations support institutions that prepare the professional, technical, and skilled people needed by the business community. One of our managers called it a "merger of opportunities." Corporations commit funds to support vital educational activities.

Colleges turn out graduates needed to plan and manage the corporation's future growth. The end result of corporate philanthropy is that it is just good business—for the corporation, for higher education, for students, and for society in general.

But we need specific programs if we are to help meet some of the problems I have mentioned. In 1981, Kodak expanded its research grants to specific graduate departments. Our objective is to encourage scientific exploration in areas related to our own diverse research and development programs. Today we target contributions to the educational institutions that are most productive to the company from the standpoint of recruitment and needed technology.

It has been charged that business has been eating its seed corn by taking the brightest and best students away from the classroom. To help combat this, we're providing Kodak teaching incentive grants. This program is designed to encourage outstanding doctoral graduates to pursue engineering and scientific careers in teaching and research. Another program encourages scientific inquiry and excellence through grants for graduate students in engineering and science. Our expenditures for grants to higher education this year will total nearly $5 million.

An approach I find interesting is the pilot program launched by General Electric. Forgivable loans for doctoral students who remain in academic teaching allow students to borrow up to $5,000 per year until they complete their graduate studies.

If they choose to remain in academic teaching as their profession, 20% of the loan will be forgiven each year they are employed on a college faculty.

I think you'll also see more interest in establishing teaching chairs at selected institutions as a means of assisting colleges in recruiting and keeping faculty. We may enter more programs that offer salary assistance in return for research.

I want excellent teachers in higher education. I'll do my part to support programs that ensure we'll have an adequate supply of college professors. I agree with Henry Adams who said, "A teacher affects eternity; he can never tell where his influence stops."

As you plan for the remainder of the 20th century, rest assured that industry is dependent upon you for its most important resource—its people. Encourage students to grow. Excite them about education. Challenge them. Finally, show them that ours is a society of interdependence and that to succeed they must interact with others.

Through them, you—and we—can influence eternity.

II. OPPORTUNITIES FOR WOMEN GRADUATE STUDENTS

Presiding: Eric Rude, *University of Wisconsin-Madison*
Presenters: Lilli S. Hornig, *Executive Director, Higher Education Research Service, Wellesley, Massachusetts*
Equality with Modifications
Jan Shubert, *Professor of Communications and Director of Academic Records, The Graduate School, University of Michigan*
A Dangerous Experiment Becomes a Hopeful Experiment: Women and Graduate Education at the University of Michigan (1870-1982)
Susan Scarberry, *Ph.D. Candidate in Comparative Literature, University of Colorado, Boulder*
Reshaping Self Images

Addressing the topic of Opportunities for Women Graduate Students are Susan Scarberry, University of Colorado, Boulder *(at the podium),* Lilli S. Hornig, *Higher Education Research Service, and Jan Shubert,* University of Michigan.

Lilli S. Hornig

When sex discrimination in higher education became illegal in 1968, women were about one-tenth of new Ph.D.s annually; in 1981 they were nearly one-third. These figures speak eloquently to the effectiveness of lowering formal institutional barriers to women in graduate programs. Still, one-third is a good deal less than one-half, suggesting that there remain some constraints on women's full participation. This paper will examine what these remaining barriers are and what graduate faculty and especially administrators can do to remove them and to foster full equality of opportunity.

A brief recapitulation is in order of the reasons why achieving sex equality

is important. First, if universities want to maintain their claim to moral leadership, a clear commitment to equality must be not only formulated but also implemented in all their policies and practices; we cannot continue to generate gender-based distinctions in teaching and research and then deplore discrimination in other workplaces. Social responsibility, as Howard Bowen has so eloquently reminded us, begins at home. Second, a talent pool of high quality that is adequate to national needs cannot be maintained without a broad base of *all* available talent, regardless of the shape and color it inhabits. Third, enlightened self-interest suggests that in an era of declining enrollments and the threatened extinction of many graduate programs, no university can afford to neglect or short-change one-half of its customers.

Women and men now enter graduate schools in essentially equal proportions and are about equally likely to earn master's degrees; attrition of women occurs primarily between the M.A. and Ph.D. Field distributions differ considerably by sex, in large part because of historical patterns of access and undergraduate training that are well beyond the scope of this paper.[2,3,4] These distributions have been converging for a long time, strongly so in the last decade,[5] as access barriers have diminished; currently the numbers of women Ph.D.s in the natural and mathematical sciences are roughly equal to those in humanities fields.[6] Attrition of women from graduate programs is a highly field-dependent phenomenon and appears to be unrelated to the academic performance of women, which generally exceeds that of men by all available objective criteria.[7] Attrition can also vary enormously among closely related fields; it is highest in mathematics, for instance, but in physics women B.A.s are just as likely as men to complete Ph.D.s, and in engineering more than twice as likely.[8] These findings and trends suggest strongly that the remaining barriers to women in graduate training are largely the result of field-specific academic cultures and customs.

Despite the inter-field variations, sex differences in graduate training have certain characteristics in common that suggest they are variations on a common theme. These characteristics are of two kinds: differences in patterns of financial aid, and differences in a collection of behavioral patterns categorized as "professional socialization." They are linked by the fact that both patterns are under the control primarily of faculty but also of graduate administrators.

Differential financial aid for men and women was outlawed by Title IX of the Higher Education Amendments of 1972 and such data as have been available until now suggested no particular discrepancies, except for continuing subsidies to men under the G.I. Bill; about 8% of male Ph.D.s in 1981 had still derived primary support from this source. However, recently published data[9] reveal considerable sex differences in primary sources of graduate support. Field by field, women graduate students are more likely than men to have to support themselves (either through their own earnings, or parents' or spouses' contributions). The differences are very large in some

fields; the incidence of self-support is 82% greater for women than for men in medical sciences, 44% in computer sciences, 33% in earth sciences, and 27% in English. Further sex distinctions appear in the allocation of institutionally-administered funds; in seven major fields—chemistry, earth sciences, mathematics, computer sciences, engineering, history, and foreign languages—women are significantly more likely than men to be supported on teaching assistantships, with the difference in earth sciences and computer sciences amounting to almost 100%; conversely, support from research assistantships heavily favors men in all of these fields except history and foreign languages. In some fields where both TA's and RA's are relatively rare, distinctions appear in other kinds of support; in mathematics, for example, men hold university fellowships five times as often as women.

While we have no recent information yet on potential differences in the total amount of financial aid, the primary source of support is itself a critical factor in determining the quality of graduate experience. Having to earn one's way through graduate school takes time, energy, and a higher degree of motivation—especially when one is paid less than a man for the same work—and is likely to engender delays in degree completion as well as a sense of alienation from the institution and the profession, possibly discouraging further attendance. Having to be financially dependent on parents or spouse exacts a price in personal autonomy. Holding a teaching assistantship beyond the minimum service requirement in any science field is a serious disadvantage in that it detracts from research, reduces contact with faculty and peers in research groups, and hence also reduces research productivity, presentations at meetings, publications, and professional contacts—all areas in which men are disproportionately advantaged through more generous support as research assistants. The fact that the structuring of financial aid in the past had contributed to greater involvement of men in graduate school activities and interactions with faculty has been noted by other authors.[10,11]

The advantages accruing to male students from increased contact with colleagues and faculty are all in the category of "professional socialization," most particularly for academic careers. It is the informal interactions that occur in research groups, in casual discussion, at professional meetings, or even over a beer at the end of the day, that convey needed information to students about the structure and functioning of the profession for which they are preparing. It is in these settings, not in the classroom, that students acquire not only the kind of substantive knowledge that lends interest and texture to a field, but learn the social and organizational processes by which the profession functions. Women students, segregated with their undergraduate charges in other classrooms and laboratories or earning their tuition in some other institution, often simply do not get this introduction. In the aggregate, the evidence becomes convincing that while men in graduate school are trained to be worthy successors to their faculty, women are typecast as, at best, un-

dergraduate teachers—a conclusion that finds very strong support from an analysis of faculty letters of recommendation.[12] This early typecasting then facilitates the continuing occupational segregation by sex that remains characteristic of the academic profession, equal-opportunity statements to the contrary notwithstanding.[13,14]

Study after study in the last decade has failed to identify objective reasons on which such differentiation by sex might be based. The most effective approach to solving the problem, and one that will assume increasing urgency as the likelihood of litigation grows with accumulating evidence, is complete equalization of graduate support patterns, with particular attention to those fields that display especially large disparities. To achieve that, most graduate deans' offices will need to solicit the cooperation of their graduate faculties and must take the first step of analyzing their own institutional records, department by department, with respect to the recent history of financial aid by sex. Any department that falls below the in-field national average for training women Ph.D.'s should receive special attention, since a low rate of educating women may also indicate other departures from equality of opportunity that require correction. As officers of an institution, both deans and faculty have the responsibility to take steps to ensure that at least no formal procedures and practices distinguish between male and female students.

Informal distinctions are perhaps less easily eliminated, although many of these should diminish as financial aid patterns are equalized. Some inexpensive compensatory programs for women graduate students have been developed and others are in process. Current experience suggests that such programs are best carried out within departments or groups of closely related disciplines rather than on an institution-wide basis, and that they are most effective when graduate faculty can be persuaded to take an active part. Programs to interest such faculty in the sex equity problems that continue to exist have not had notable success, however. Leadership from graduate administrators is necessary to convince faculty that these problems and their possible adverse consequences to the institution will not simply go away but must be solved.

The title of this session stressed "opportunities" for women in graduate training; those opportunities took a quantum leap around 1970 when formal access quotas for women disappeared and their elimination produced the astonishing rise in women's participation that we have witnessed. This increase has not, however, been reflected in enhanced career success, although more women have been hired by academic institutions; it is their proportion of off-ladder jobs rather than tenured positions that has risen. Since faculty and administrators determine hiring and promotion as well as practices relating to graduate study, the supposition that unfavorable outcomes for women are foreordained by the patterns of graduate education is hard to escape. As the proportion of women scientists increases, however, the results of sex discrim-

ination become more unfavorable to the institution itself, since its reputation ultimately rests on the achievements of all its graduates. In the past decade countless studies have sought—and failed—to identify various elusive characteristics of women that might account for their lower participation and lesser ultimate career success. In contrast, institutional practices have been studied very little, largely because direct access for data collection and analysis is severely limited; such information as has come to light, for instance in litigation involving sex discrimination in the award of tenure, has not been to the universities credit. The evidence presented here that identifies institutional practices as an important source of discrimination necessarily remains somewhat circumstantial. Nevertheless it is compelling, and university leadership must respond to it.

NOTES

1. National Academy of Sciences, *Summary Report 1981 Doctorate Recipients From United States Universities*, Washington, D.C., 1982.
2. National Academy of Sciences, *Climbing the Ladder II: A 1982 Report on the Status of Doctoral Women Scientists and Engineers*, Report of the Committee on the Education and Employment of Women in Science and Engineering, Commission on Human Resources, Washington, D.C., 1983.
3. Horng, Lilli S. and Ruth Ekstrom, *The Status of Women in the Humanities*; Report to the National Endowment for the Humanities; in press, 1983.
4. Conable, Charlotte Williams, *Women at Cornell: The Myth of Equal Education*; Cornell University Press, Ithaca, N.Y., 1977.
5. National Academy of Sciences, 1983, Ch. 1.
6. National Academy of Sciences, 1982.
7. See Notes 2 and 3.
8. National Academy of Sciences, 1983.
9. National Academy of Sciences, 1982, Text Table D.
10. Solmon, Lewis C., *Male and Female Graduate Students: The Question of Equal Opportunity*, Praegar, New York, 1976.
11. Solmon, Lewis C., Nancy E. Oehsner, and Margot A. Horwitz, *Alternative Careers for Humanities Ph.D.'s: Perspectives of Students and Graduates*, Praeger, New York, 1979, p. 22.
12. Horng and Ekstrom, *loc. cit.*, Ch. 3.
13. *Ibid.*, Ch. 13.
14. National Academy of Sciences, 1983.
15. Higher Education Resource Services, Wellesley College, Wellesley, MA 02181 can provide program information on request.

Jan Shubert

In March of 1858 the Regents of The University of Michigan received a letter from Miss Sarah Burger of Ann Arbor announcing that she and eleven other "young ladies would present themselves for admission as students in June next." One writer later reported that "The Regents hastily tabled that letter, as if it were a combustible substance." In the time honored tradition of academies the Regents formed a committee to "study the matter." The Committee's report, presented in September of 1858 noted that the State Superintendent of Public Instruction was in favor of admitting women. He supported this on the grounds that the statute which founded the University made enrollments open to *all* persons resident of the State. Women, claimed the Superintendent, were comprised in the definition of "person."

In the ensuing discussions the Regents were willing to admit that women might be persons. But they reasoned since *certain* persons could be barred from admission to the University (immoral persons, for example) then it would therefore be possible for the Regents to exclude *any* persons "whose presence would detract from the character of the Institution." The Committee linked this reasoning to the education of women and reported "By many it is regarded as a doubtful experiment, by some as a very dangerous experiment ... certain to be ruinous to the young ladies who should avail themselves of it ... and disastrous to the Institution."

And so it was not until 1870, twelve years, a Civil War and many Regents debates later, that Madelon Stockwell became the first woman admitted to The University of Michigan. One hundred years later, in 1970, Dorothy Gies McGuigan published the book from which much of the above information was taken. The title of her book? *A Dangerous Experiment: 100 Years of Women at The University of Michigan.*

And now, twelve years later, myself a veteran of this experiment which was to be ruinous to ladies who undertook it (I am afraid that there have been days when I found the 1858 report prophetic), I am here to talk about how goes this experiment at a large research institution as it moves toward its second one hundred years. With admiration for the women who began the experiment and with gratitude to Dorothy for chronicling their adventures and helping to launch ours, I want to take the next few minutes to talk about a specific group of women at U. M.: graduate women. What I am going to attempt is a very abbreviated review of the history of our dangerous experiment. Although I will be talking of graduate women in general, I hope also to highlight some of the milestones in our history for women of color and for non traditional women students. Because graduate education for women involves far more than just the number of women enrolled or awarded degrees, I want also to touch on program developments, increases and decreases in women faculty, and also those amorphous but critical variables which Adrienne Rich has called "the university without walls." I imagine that our

experiences at U-M will strike responsive chords for many of you. Much of our on-going experiment will sound familiar, because you have attempted similar experiments. And so to begin.

By the turn of the century eleven women had earned the Ph.D. at The University of Michigan. For the next twenty years women were to represent an increasingly larger percentage of the total graduate enrollment. In 1912 while there were only 326 graduate students, 95 of them were women. In 1916 slightly more than 31% of all graduate students were women. By 1919 this figure had reached what, unfortunately, remains an all-time high of 45%.

The early 1900's also saw some major programmatic developments for graduate women. One of the most significant of these was the establishment of the Levi Barbour Scholarship for Oriental Women Graduate Students. Begun in 1917 with a gift from a former Regent, this program has continued to make approximately ten awards a year of full tuition and a stipend.

The years following World War I were discouraging ones for graduate women nationwide. At The University of Michigan our enrollment of graduate women began declining, dropping to 34% in 1926 where it remained relatively stable until the 1950's when it again dropped even further. By 1956 only one in every ten graduate degrees was awarded to a woman.

It was not until the mid 1960's that our University once again not only saw an increase in the enrollment of women graduate students, but also began actively promoting programs to enhance the quality of life for its women graduate students. Foremost among these programs has been the Center for the Continuing Education of Women, which was founded in 1964. Although the initial goal of the Center was to provide counseling to women whose undergraduate education had been deferred or interrupted, the Center's role and influence has expanded greatly over the last eighteen years. By the end of its first decade of existence several thousand women had been encouraged to complete baccalaureate degrees and many of them had gone on to earn graduate degrees. In addition, the Center has provided short term financial assistance to graduate women, has acted as the clearing house for historical and theoretical data, thus greatly aiding the research of women in graduate programs, has served as a catalyst for University wide policy reviews and reforms and, last but not least, has provided invaluable staff time and talent to aid in a better understanding of the needs of women at all levels within the University.

The decade [illegible] for graduate women at The University. Several offices were opened to address women's concerns, groups were formed and policies were enacted which served to enhance the quality of life for graduate women.

One of our great achievements came in 1972 when the Dean of the Graduate School appointed a panel to study the status of women in graduate education. Their report, "The Higher, the Fewer" was published in 1974 and contained recommendations which have, in the last eight years, served as

the impetus for several new policies, programs and activities for graduate women.

Even a very brief, very cursory review of the outcomes of this report would have to include:

- The Non-Traditional Fellowship Program begun in 1974 which awards annually fellowships to graduate women whose education has been interrupted. With a current operating budget of $50,000, awards range from just a few hundred to several thousand dollars.
- In 1975 the establishment of Graduate School support for a division of Career Planning and Placement which was particularly valuable for women graduate students who had not received mentoring from male faculty.
- The Graduate School support for departmental retention and development activities for women graduate students. This includes, for example, the series sponsored by Geological Sciences to bring outstanding women professionals to campus for seminars and informal meetings with graduate women.
- A large array of seminars, workshops and conferences for women graduate students, developed and sponsored by the Graduate School, by departments and by other interested groups. Topics and issues included the problems of non-traditional graduate women, coping with math anxiety, special concerns for women of color, child care facilities, interviewing for jobs, etc., etc.

It was also during the late 1970's that a number of programs which were to have both direct and indirect effects on graduate women began, or, having already begun, were expanded. For example, the CEW "Women in Science" program has been successful in encouraging more women to enter the undergraduate science programs, with the result being an increase, albeit a slight one, in graduate enrollment, particularly for women in the biological and medical sciences. During these years the Affirmative Action Office also grew in scope and function. The Graduate School Office of Minority Affairs developed and expanded activities that were beneficial to women of color, including programs of financial and academic support. The multidisciplinary Women's Studies program involved more graduate women in teaching. The Women's Career Fair expanded to include more topics of interest to graduate women. The Graduate School and the College of Literature, Science and the Arts co-sponsored a Career Conference for Academic Women which was presented by Higher Education Resource Services, New England. All in all, it was a heady, active, productive ten years.

In the first two years of the 1980's we have continued to witness the growth of these programs as well as the birth of others. The Center for Gender Studies has become a well recognized University program. The Graduate Women's Network, founded in 1980, has held its first conference (What's A Nice Woman Like You Doing In A Place Like This?). The Program to Com-

bat Sexual Harassment was begun in 1980 and has sponsored workshops, seminars, developed brochures and produced "trigger" films. Several women's groups on campus combined to form the Women's Network for sharing ideas and information (critical issues on a large, decentralized campus). The Faculty Women's Caucus completed a study and presented a report to the Regents on the Status of Female Faculty. The Affirmative Action Office has completed their report of U-M employees and is launching their study of U-M students.

So where does this leave us in our experiment? What do we do next? I would like to suggest six areas of women's graduate education which I feel deserve more critical scrutiny. Again, some of these will strike responsive chords, particularly for those of you from large, state supported institutions.

The first thing we need to continue our experiment successfully is information. Not just *more* data, but data of a particular kind. For example, why do women who are accepted at the graduate level not enroll for our graduate programs? If we are correct in our assumption that this is linked to offers of financial assistance, we will also need more information about the *type* of assistance available to women, the amount received by women and the period of study covered by the assistance. I should note that asking for detailed information at a large, decentralized institution is no small thing — getting it in a usable form is one of our daily crosses.

Second, we need to know more about what happens to young women as they make their way through our institutions. In Michigan, it is estimated that females represent 51% of the total high school population. At our own institution, women represent 44% of the total undergraduate population. And yet, at the graduate level, women at U-M represent only 38% of the total. We are clearly losing thousands of young women yearly. But losing them to what? And why? A yet unpublished report of the COFHE institutions on college seniors may aid us greatly not only in answering these and other questions, but also in planning more successful recruitment and retention programs. This is particularly important for women of color.

Third, we need to know more about what happens to our graduate women after they leave the University with or without degrees. In 1968 women received only 12.6% of the Ph.D. degrees awarded at U-M. This figure had doubled by 1978 and in 1981 women were awarded 29% of our Ph.D.'s. What we *don't* know with any great exactness is how many of our women graduate students dropped out while pursuing their Ph.D.'s or why. Nor do we know how many enrolled originally hoping to obtain a Ph.D., but stopped after a master's degree.

A fourth area which needs our attention as we proceed with our experiment is more active, vigorous recruitment of women graduate students by the individual departments. With total U-M enrollment of graduate women holding at about 38%, there are still schools, colleges and programs which fall below that average, and which need to examine carefully their recruit-

ment procedures, their awards of financial assistance to women and their placement of women graduates.

If we are to see improvements as we move toward our second hundred years of women at U-M, a fifth concern must be the recruitment, retention, financial support and placement of women of color. Our minority enrollment has decreased at U-M; the percentage is less for graduate programs and as of yet relatively slight for minority women. The Graduate School has recently begun new recruitment activities, and one of its goals is to increase the number of women of color in our program.

And last, but not least, we need to turn our attention to the hiring and promotion of women faculty. In 1980, females constituted only 16% of the total faculty and only 10% of the tenured faculty at U-M. The hiring and promotion of women, particularly women of color, has remained stable in most units, but has shown *no* increases in *any* units, and has actually declined in a few units. The role of women faculty is, I believe, critical for the effective education of graduate women. The recent reports by the Affirmative Action Office and the Faculty Women's Caucus, as well as the continued concern and pressure of colleagues campus-wide, while not likely to result in dramatic increases, will, I believe, move us toward a more equitable representation of women on the faculty.

At The University of Michigan clearly we have not solved all the problems of women in graduate education. We have identified many, addressed some, achieved some victories, and suffered some defeats. And where does this leave us? In June of 1872, President Angell told the Regents:

"If we are still to regard it as an experiment, it must certainly be deemed a most hopeful experiment."

I am hopeful that by the time we reach the conclusion of our second hundred years, someone will look back and remark on our *successful* experiment, while at the same time wondering that it was *ever* thought an experiment at all.

Susan Scarberry

Surely it [illegible] students, on the whole, perceive themselves to be in a different *position* from their male counterparts in academia. Why do we perceive this to be so? Precisely what is different for us?

It is well known that in the culture at large women's work is devalued compared to men's, except for work in traditional "female fields" such as nursing and teaching in the primary schools. One commonly hears that women make, on the average, 59¢ for every dollar of men's earnings. As might be expected, higher education is not exempt from perpetrating broad-based cultural attitudes which discriminate against women, sometimes subtly, some

times overtly. Time and time again women's competence as professionals is questioned by the power structure of existing institutions, on both administrative and personal levels. It is not my purpose here to suggest a sense of division between men and women. On the contrary, I would like to assert that professional competence does not coincide with gender whatsoever. Yet stereotyped perceptions persist which indicate that women are often less capable than men to deal with the rigors of intellectual life. Worst of all, it is often women themselves who have been taught convincingly to see themselves in this way, who believe the myth.

It is my contention that women must examine the potential range of their own positive attitudes towards professionalism in spite of financial limitations and negative self-expectations frequently foisted on them by others. In addition to pushing for greater equality in regard to active recruitment in graduate programs, more financial and moral support during graduate study, and improved assistance in acquiring academic positions after graduation, I believe that we must reshape our own self-images from within so that we can create our own opportunities.

A recent report entitled "A Classroom Climate: A Chilly One for Women?" published by the Project on the Status of Women of the Association of American Colleges says that women's self-confidence may be eroded during college, that "Women are treated as less serious students." Is there anything about women's behavior that should give this impression? Women are still raised to be non-assertive and especially quiet in the public arena. This social training may give rise to the impression that women tend to be inarticulate or have less commitment to their endeavors than do men. More importantly, however, women's lives proceed at different cadences than do men's Many women have a hiatus between stages of an academic career in order that they may raise children or support a husband through his graduate studies. While this option is usually seen as a significant limitation, it could be seen as an opportunity to expand personal knowledge about fundamental life processes and intimate relationships in a new work context. Should women be denied the full experience of raising a family merely because a temporary absence from the classroom or job market makes them suspect of being "less serious" than young men? No one wants to jeopardize her career, so women such as I find ourselves striving to fulfill both needs simultaneously.

Graduate school is a threshold, a watershed experience particularly for women students who may feel unsure of their chances for success. In our English Department at the University of Colorado at Boulder there are presently eleven women faculty members and fifty-five men, indicating an imbalance which suggests that there are two few role models for women students who are attempting to do well in scholastic work and are hoping to secure an academic job later on. As a graduate student in comparative literature, I personally have had the good fortune and flexibility to study under Dr. Rose-Marie Oster, now graduate dean at the University of Maryland, and Dr.

Kaye Howe, currently vice chancellor for academic services at the University of Colorado. I have been inspired by their abilities and made to realize that one need not be disillusioned with the profession.

Still educational facts are often disconcerting. According to the National Research Council's "Summary Report 1981 Doctorate Recipients from United States Universities", while the proportion of doctorates granted to women has increased 1% between 1980 and 1981, men are still earning approximately two-thirds of all doctorates, and women reported self-support much more frequently than men. Some women friends of mine have said that they feel held back due to a combination of factors such as financial difficulties and sexual harrassment. One of them voiced her concern that she might be discredited as a potential faculty member because she would not be perceived as needing a job as badly as a man

How then can we make ourselves feel less vulnerable and get on with our work? Women graduate students should do intensive "networking," providing one another with information that is mutually (not just individually) advantageous. Women should encourage one another to polish up papers for publication and for readings at conferences. Information should be shared on scholarships, such as Woodrow Wilson stipends, available to minorities and women. Organizations such as the Modern Language Association's Graduate Student Caucus and Commission on the Status of Women in the Profession can provide useful insight into professional life and help establish personal connections for the student outside of her home institution. It's my belief that the quality of one's educational experience increases greatly with active participation in regional or national academic activities.

It seems to me that what is largely missing from graduate study as a whole is the presence of a prevailing womanly perspective that breathes life into the classroom. Women are usually tolerant of diversity and as academics are often intent upon listening to lesser known voices than those found in standard academic canons. As more women gain faculty teaching positions, the curriculum is bound to become more comprehensive and integrative, enriching everyone. New areas of research are opening up continually because women are pressing to balance distorted images of themselves. Women's Studies courses are flourishing nationwide because men, as well as women, are curious about the ways in which women of various cultures structure reality and relate to the world.

Women graduate students can contribute to changing the profession by monitoring closely institutional decisions and by speaking out if these practices seem unfair. At the same time that we feel a sense of urgency about this task, we must look at ourselves and question whether perceived disadvantages are in fact barriers to success, or whether we can reimagine ourselves as strong, self-reliant women creating our own scholarly opportunities.

III. THE GRADUATE SCHOOL AND TEACHER PREPARATION: WHAT ARE THE GRADUATE SCHOOLS DOING TO IMPROVE TEACHER PREPARATION?

Presiding: Mary Ann Carroll, *Indiana State University*
Presenters: Carolyn Ellner, *Dean, College of Education, California State University, Northridge*
Forging a Joint Venture
Eva Galambos, *Southern Regional Education Board, Atlanta, Georgia*
Strengthening Graduate Schools of Education

Carolyn Ellner

It is a pleasure to speak with you about how graduate schools and, of course, graduate deans can help to improve the quality of teacher preparation. Having served both as a graduate dean and as dean of a school of education, I can bring what is perhaps a unique perspective to this difficult and important task.

No one will deny that the teaching profession is in need of help, and teacher education is a critical facet of the problem. We have neglected education for so long that a problem has become a crisis. Teacher education is now a singular national concern. Teacher education is, whether one likes it or not, fair game for its detractors, and it has been for a long time. It would be hard to imagine discussing at this meeting topics like: What Are Graduate Schools Doing to Improve Engineering or even Business.

We read in the papers that students in teacher preparation come from the "bottom of the academic barrel" as measured by SAT and GRE scores. We deplore the fact that, unless we attract able or even adequate students into the profession, there will be no math and science teachers to train the next generation of scientists or educated citizens. In many cases, the conditions in schools in which teachers are preparing to work have seriously deteriorated. Attrition for teachers in the schools already is rising. Competent women, who have been for generations the mainstay of education, now find other more attractive fields open to them. Competent men are also leaving the field. In short, the talent pool is drying up.

Some critics have suggested that the difficulty in recruiting topflight teachers runs deeper than inadequate pay or poor working conditions. These pundits argue that the problem is deeply rooted in teacher training itself. An article in the September 2, 1979, N.Y. Times sums it up. "Rather than attract the very best person," writes an East Windsor, N.J., school administrator, "... our teachers' colleges have tended to attract the mediocre, the unimaginative, the visionless men and women who, after a four-year grind, will have completed a list of courses usually short on academic content but rife with

In a session on The Graduate School and Teacher Preparation, speakers are F. James Rutherford. American Association for the Advancement of Science; *Eva Galambos*, Southern Regional Education Board; *Carolyn Ellner*, California State University, Northridge; *and presiding. Mary Ann Carroll*, Indiana State University.

methodology that has little if any application to the requirements of the modern classroom." I will not become defensive and refute some of these charges, although there is a great deal about how teachers are prepared that is positive and exciting. Instead I will assert that if competent university academics, as well as educationists, work together to increase and improve tomorrow's teachers, we can do a better job than if we work at cross purposes, content with criticizing each other across the campus.

Teacher preparation should be the responsibility of the entire university. Work in a school of education is only the professional component of what should be a college experience of depth, breadth and excellence. Who, for example, should be responsible when a teacher cannot write a literate letter to a parent or tells a class that 39 is a prime number?

At the end of this talk I will suggest some ways for graduate schools and schools of education to work together to improve the quality of emerging teachers. But first, I would like to examine and contrast the role of schools of education with that of graduate schools, and then discuss how they interact. This will enable us to see then how the two schools might work more closely and cooperatively toward a common goal.

In preparing for this session, I enlisted the help of my colleague, Charles Bearchell, the graduate studies dean at Northridge. Together we polled several of the graduate deans in California as well as the education school deans, to evaluate the current relationships. From these data, which I must warn you are not from a random or even a stratified sample, we began to obtain some insight into ways we can work together better. In all, we spoke to more than 20 graduate deans and education deans.

Let us start by reviewing the role of the graduate dean and the graduate council in the university and contrasting them with the functions of the education

dean and the education faculty at a similar university. I will begin with the obvious. Graduate schools are not alike. Some are free-standing institutions with substantial resources. Others are part of a university but have a separate or overlapping graduate faculty. Some control the allocation of graduate assistantships and fellowships. At the other end of the spectrum, the "Graduate School" may consist of nothing but a graduate dean, who may wear many other hats, and a committee called the graduate council or something similar, with a graduate faculty indistinguishable from the undergraduate faculty.

The university graduate council is the executive arm of the graduate faculty. It has the responsibility for formulating the policies which the graduate dean implements. Of course, the graduate dean has a strong voice on the council and is the representative of the central administration.

The power of the graduate dean varies with the resources available. The graduate dean generally holds a staff position. By the nature of the work he or she has a broad cross campus perspective and relates to all the disciplines (or at least the ones with graduate programs) in the university. His or her primary responsibility is the *quality* of graduate programs. In many ways the graduate dean is first among equals and is the focus of a "graduate presence" on campus.

Generally, the dean fulfills his or her mission by controlling the admission of graduate students, reviewing programs and courses, making committee appointments and in some cases appointments to the graduate faculty itself, and by supervising degree requirements such as examinations and theses. In performing these functions, more often than not, the dean's role is responsive rather than initiatory. The dean waits for problems to reach his or her desk and then reacts to them by saying "yea" or "nay."

Let us look now at schools of education and their deans. Just as graduate schools are not alike, schools of education generally differ. In contrast to the high status of graduate schools, the status of schools of education is very low. The exceptions are certain prestigious institutions which are, more often than not, really centers for research in disciplines such as sociology and psychology. At these schools the faculty happen to be interested in studying the schools but are also closely tied to their colleagues across the university.

At many of the large public universities, schools of education, however, are relatively free standing giants, isolated from the rest of the campus, and of lesser status. They offer something for everybody, from the most theoretical to the most practical subjects. Outside funding drives a large part of their operations.

Many state universities, as the offspring of normal schools, fall into a third category. Teacher education, as one time, was central to the mission of these institutions. They are practice oriented and their highest degree is often a master's. These schools are usually the largest producers of teachers in a state. They are deeply concerned with conforming to credentialing and licensing laws and in California, for instance, the California State University System produces 60-70% of the state's 15,000 new teachers each year. At Northridge, we graduated 1,200 teachers last year. And, it might interest you to know that approxi-

mately one-third of the graduate degrees in the CSU system are in the field of education.

Teacher preparation institutions have difficulties which do not face most other professional schools or even schools of education such as Stanford or U.C.L.A. which produce few teachers. Teacher education curriculum must reflect the mandates placed upon it by the legislature. Teachers' courses of study are constrained by certain minimum standards and minimum competencies which are formulated outside the university and are not always in accord with faculty perceptions of what constitutes good preparation. Often these minimum standards become acceptable in graduate programs, such as M.A.'s in education, that spring from the basic credential programs. Furthermore, it is sometimes simply not worth the effort to design courses which go beyond the minimum standards necessary because of the energy and sometimes conflict necessary to gain campus-wide approval. If this tension is added to the problems created by any deviations from legislative mandate, then the effort to develop more stringent standards often appears to be not cost effective.

The education dean has, as we all know, a perspective different from that of the graduate dean. He or she is responsible for a distinctive, often physically distinguishable unit. The education dean handles personnel, curriculum, budget and other operations and deals with many outside agencies ranging from school districts to the central administration (including the graduate dean) to the legislature.

Usually, the graduate dean and the education dean interact when the graduate dean says "no." We heard very few comments about collegiality or productive relations in our survey. The graduate dean is a guardian, whose function is to keep the education dean (as well as others) honest by supervising admissions to graduate programs, approving courses and curriculum and reviewing dissertations, theses, and examinations.

I now come to the crucial questions: Is this the best relationship? Is this the only relationship? How can the relationship be improved?

We all know that this antagonistic relationship is not the best, although we have few other models with which to compare it. In "A Deduction of the University" Griffin proposed that professional schools, such as medicine, engineering, business and law, detract from the central mission of the university and should be distanced from the campus. To separate the education school from the rest of the campus would be counterproductive and take us full circle to the normal schools of the past. Isolation is probably not the answer, although a vice presidential colleague of mine suggested that maybe education should "do its own thing" and not worry about others on the campus. He argued that since education will never attain first class status, it might be wiser just to provide the best programs possible and not be concerned about the criticism of others in the university.

Another alternative to the *status quo* is to divide the functions of schools of education among the disciplines—and as Berkeley did put the school of educa-

tion into receivership. I believe this solution would be completely counterproductive since no one would have teacher education as a central mission.

The study of education—how individuals learn and hence how to teach them—is an exciting one. Professors of education know a great deal about teaching and learning that our colleagues in the arts and sciences do not. I believe, therefore, that the solution to quality and productivity lies in keeping the present structure but improving the existing relationship between the schools of education and graduate schools, rather than radically altering it.

I will identify eight factors which our study found hindered the optimal relationship between graduate schools and education schools. These observations were elicited from both graduate deans and education deans.

First, there appears to be—in many cases—a lack of collegiality and trust between individuals in the two schools. Because of the low status of education, graduate deans and others tend to want not to become involved with schools of education; associating with education provides little or no political or career mobility. As a result, graduate deans may scrutinize transactions with education more carefully than other departments and react negatively to certain interactions.

Second, graduate deans [illegible] to be involved in teacher education. There could be several reasons for this: they don't want to associate closely with education; they feel that their suggestions would not be welcome; or they don't understand the complexities of forces affecting education such as legislation, accreditation, professional organizations and unions.

A third problem is that graduate deans, even if they are committed to improving the quality of teacher education, have few resources to accomplish that goal—they don't have fellowships to award to credential candidates or master's level students, graduate assistantships to allocate, or soft money projects to assign.

Fourth, professional school faculty seldom end up as graduate deans. Education, an applied field of study, is rarely represented in the administrative hierarchy, especially at more prestigious institutions. This leads to even less empathy and understanding.

Fifth, people in education speak a different language. Often reports submitted to the university at large are perfectly intelligible to people in education and virtually meaningless to the rest of the university. For instance, PL 94-142 mandated mainstreaming in the schools. It was only the informed who knew that it was not a new form of plumbing but really a program to bring physically and mentally handicapped children into normal classrooms.

Sixth, education deans want to be autonomous; they are not looking for additional, albeit constructive, criticism. Also, as is natural, if formal communications avenues are not established, they don't keep their colleagues across campus informed of what is happening at the school of education.

Seventh, schools of education must deal not only with graduate programs

but also credential requirements. Sometimes these tasks are not compatible; other times they are. Minimum competencies are required for credentials; a high quality of performance should be required for a graduate degree. These tensions lead to conflict and in some cases poorly designed master's programs.

The final problem deals with the nature of teacher education curriculum and misunderstandings about it. The old adage, "Those who can, do; those who can't, teach; those who can't teach, teach teachers," is subscribed to across campus. The nature of education courses and the criteria by which to judge them often is unclear to graduate committees because of that belief. Although that is not true, education courses often try to cover a subject from its basic principles to its applications for teaching, thus allowing little time to treat pedagogical applications for depth. More prerequisites should be required for work in education, allowing the teacher education curriculum to insure the production of excellent teachers.

What then can be done to improve the quality of teacher education? What can graduate schools contribute to this much desired end?

First, improve the two-way flow of academic ideas. A new, cooperative relationship of intellectual stimulation could be fostered by such activities as jointly sponsored lectures, joint research on teaching, and subject matter institutes. These projects should be carried out in a collegial and supportive atmosphere.

Second, the graduate dean and leaders in the graduate schools should become familiar with credentialing requirements and other outside pressures on teacher education programs. By doing this, they will gain a perspective on forces influencing teacher education programs, and become more helpful in curriculum reform.

Third, the university should continue a commitment to excellence and quality in teacher education. A time of declining enrollment should not mean a time for opening up admissions to poor students or doing away with teacher training programs. It is an opportunity to review curriculum, emphasizing and supporting the best and being even more rigorous and selective in allowing individuals to enter the profession. The graduate school should play a major part in this endeavor.

The graduate dean should be a strong supportive voice for teacher education, encouraging students to participate. In some shortage areas admissions to graduate schools might be given priority if an applicant has had some experience in elementary or high school teaching. Pre-college teaching might even provide a source of support for graduate students and young scholars. While obtaining a degree a graduate student could teach part-time at a high school, thus earning a living and helping in some areas to relieve shortages. After receiving a doctorate, perhaps cooperative positions could be designed where a scholar would teach part-time in the high schools and part-time at the university.

The next ten years will see numerous retirements in our aging faculties recruited in the fifties. Now is the time for academic planning and anticipating

future staffing needs. Joint planning might result in attracting high quality new professors who will be able to provide resources to meet teacher education needs as well as those of the university at large in an efficient manner.

The nation's high school and elementary school teachers are a national resource. It is our teachers who must prepare the pool from which will emerge the next generation of informed, educated adults. Poor teachers will severely limit our national future. It is ironic that poor teachers—who after all will have the responsibility of educating the nation's children for the first twelve years of formal education—will ultimately affect the kind of students who will populate our colleges and graduate schools in the future. Higher education has a duty to participate in recruiting and educating the best for the profession.

Eva Galambos

Before describing the directions for change that the Southern Regional Education Board has identified with respect to graduate schools of education (GSEs), it is important to recognize the inherent contradictions that now characterize GSEs in this country. What I am about to describe may not apply to each and every school, but it describes especially the more prestigious GSEs on which the rest try to model themselves, so that these contradictions do mold GSEs everywhere.

Fundamentally, the contradictions to which I refer reflect a deep confusion as to the mission of graduate education programs. In their quest to gain recognition and prestige, GSEs have emulated the model of the arts and sciences graduate programs. Faculty seek to do research which will be published in respected or available journals. Yet in terms of the students the GSEs admit, their standards are much lower than is true of arts and sciences programs.

For 1979-81 the average verbal GRE of applicants to education programs was 449 as compared to 488 for all candidates. Only three of 98 graduate majors had lower scores than education. The quantitative GRE differential was 76 points. Incidentally, while quantitative GREs rose 13 points in a seven-year period for all majors, those for education dropped seven points. Additionally there is evidence that some graduate education programs do not even require GRE scores. These differences in GREs hardly substantiate the mission of GSEs as based on scholarly research.

The enrollments of GSEs are dependent primarily on teachers who seek graduate credits either for recertification or to move to a higher pay grade on the teacher salary schedule. One would think that the GSEs would see their mission as being professional schools, or as programs grounded in improving the practice of teaching in the schools. Instead the emphasis of the GSEs seems to lie in every direction except the enhancement of teaching skills in the schools. Harry Judge of Oxford University, in his recent report to the Ford Foundation on American GSEs, has painted these contradictions in painfully clear words. He tells of one distinguished faculty member in a noted GSE who, and I quote

"defends his pleasure at not having to work with 'dumb-assed teachers.'" He quotes another who observes, "it has become very unfashionable for professors of education to have anything to do with schools." He sums up his assessment of GSEs by stating that "they have ceased to be professional schools without ever quite becoming anything else." What are they doing? They concentrate on training researchers and administrators. Lately some GSEs have even promoted their real mission as being one to encompass educators throughout society—in management training, hospitals, museums, and the media. In short they seem to be distancing themselves as far as possible from the fundamental base of their constituency—teachers and the schools.

There are notable exceptions, of course. Stanford University has recently affirmed its interest in the schools. Dean Atkin, as well as the President of Stanford University, have initiated a project that mobilizes not only education but arts and sciences faculties to work in and with schools.

What are the directions SREB has identified that may redirect GSEs? Our report, *The Need for Quality*, contains 25 recommendations on how to tighten standards for teachers, and for the high school and college curriculum. The recommendations dealing with graduate education of teachers are grounded on the premise that the present incestuous alliance between certification rules and graduate teacher education should be weakened. Although approximately 50 percent of the teachers in this country now hold master's degrees, the Task Force on Higher Education and the Schools is not convinced that schools have greatly benefitted by the almost obligatory pressure on teachers to take graduate credits in order to retain their certificates or to gain pay increases. The present rat race to gain graduate credits means worn out teachers, who would perhaps better spend their evenings or weekends preparing lessons for their students, enroll in the least demanding available graduate courses. Teachers will tell you that they might have helped their students more if they had been able to spend the time preparing lessons plans rather than studying materials that were included in their undergraduate courses.

SREB recommends that to relieve the pressure to take graduate courses, staff development, if tightly controlled, should be placed on a par with graduate credits. This move is presented as a way to reduce the inordinate emphasis on credentials which characterizes the employment rules for teachers. In the Southern states Florida is the only state that has removed the automatic tie between graduate credits and teacher pay. However, local contracts still incorporate this traditional tie. In the short run we recognize that recertification regulations and teacher salary schedules will continue to send vast numbers of teachers into perfunctory graduate courses that may or may not relate to their teaching assignments.

A second area in which SREB has made recommendations deals with the number of graduate programs. In the region we have witnessed a proliferation of program offerings at the graduate level. Many of these are off-campus, hither and yonder, as each institution seeks to garner a share of potential grad-

uate FTEs. My data on graduate programs in the 14 Southern states goes only to 1977. However, it shows a growth from 1,100 programs in 1971 to 1,700 six years later. The proliferation of programs, combined now with declining enrollments in graduate education programs, provides a built-in incentive to make the offering as entertaining and easy as possible to fill them up. This is unlikely to promote quality.

We have zeroed in particularly on educational administration programs at the graduate level. Many teachers enroll in graduate administration programs because they see the principalship as the only alternative that provides long-term financial rewards. Masters in educational administration in the South peaked at over 4,800 in 1976, but have declined approximately 25 percent. There is a serious question whether the number of principalships coming open every year justifies this production of educational administration degrees. Some estimates indicate we are producing ten times as many certified potential principals as annual openings.

After meetings with principals, colleges of education faculty, and state agency personnel, SREB concludes that training of principals should include a rigorous internship, whereby the trainee follows on site in the footsteps of successful principals. Few states now require a rigorous internship in the preparation of principals. Yet, just as the student teaching experience is often deemed to be the most valuable component of teacher training, so the internship for the principalship should become the backbone of training for this position. It is highly unlikely that the present number of educational administration programs in the South can all hope to develop meaningful internships in conjunction with the schools.

The large numbers of teachers flocking to educational administration programs exemplify another problem. If teachers are to gain recertification or higher pay grades as a reward for their graduate courses, such graduate courses should be relevant to the teacher's assignment. Some educational administration courses are deemed irrelevant even to the preparation of principals. They are of course even more irrelevant to enhance a teacher in a math or science laboratory or in a first or second grade classroom. This leads to another SREB recommendation: The graduate courses for which teachers receive recertification credit or higher pay grades should be relevant to the teacher's current assignment in the school. About half of our states make some reference now to such relevancy requirements in their regulations. However, the decisions on what is relevant are made in a highly decentralized manner, and there is considerable doubt as to whether even those states that acknowledge the problem have found real solutions.

Prior to 1980, in Alabama, high school teachers returning to school for advanced degrees were required to take "education" degrees. Only approximately 50 percent of the required credits for the degree could be taken in the subject the teacher is assigned to. This has now been changed so that a high school biology teacher does have the option of taking an advanced degree in

biology rather than education. I do not know the extent to which the past practice in Alabama characterizes graduate education of high school teachers in other states, either by regulation or in practice. The change in Alabama was brought about at the instigation of high school teachers, with the support of the Superintendent of Education. The deans of education were totally opposed. I suggest this is an area that merits the attention of deans in the arts and sciences. To what extent in each of your states do such outmoded regulations exist? What are you doing to improve the situation?

I would like to end by applauding the action taken by the Southern Council of Graduate Deans. Almost a year ago this Council appointed a committee to make recommendations about how the graduate schools could strengthen teacher education.

The recommendation of this committee is that the GREs and other admission standards into graduate education programs should match the institution's requirements into the arts and sciences programs. If teachers cannot meet these graduate admission standards, in order to allow them to complete the recertification requirements, they should be admitted to graduate courses on a pass-fail basis, but such courses would not gain credit toward advanced degrees. Virginia Polytechnic Institute already has this policy in place, and I feel the committee is taking a very courageous step in recommending this policy to all graduate deans in the South.

Incidentally, it is notable that the committee appointed by the Southern Council of Graduate Schools is composed of arts and sciences as well as education deans. In other words, the council recognizes the responsibility that the arts and sciences have in strengthening teacher education programs—at the graduate and undergraduate level. The posture to date has too often been of arts and sciences looking down its nose as to what is happening in teacher education, keeping at arms length, rather than doing something about it.

There is a need for the arts and sciences faculties to take a more active role in state Teacher Education Councils that establish certification rules, and, on campus, in teacher education committees that monitor the total program to educate teachers. If education majors lack the basic skills to pass minimum literacy and computation tests for admission into teacher education programs, their deficiencies lie at the door of the arts and sciences faculty that teach the general education curriculum during the freshman and sophomore years. If teacher education majors take a different math 101 from all other majors, as unfortunately is still the case in some colleges, where are the arts and sciences people who are supposed to be the guardians of the general core of liberal education for all students?

The point I am making is that strengthening the undergraduate as well as the graduate programs for teachers will require involvement by arts and sciences faculty. Arts and sciences faculty and deans who fail to get involved in teacher education—graduate and undergraduate levels—have no right to castigate it or to look down their noses.

IV. WHAT APPEARS ON THE HORIZON FOR GRADUATE EDUCATION OF MINORITIES?

Presiding: Anne S. Pruitt, *The Ohio State University*
Presenters: Melvin Thompson, *Senior Policy Analyst*
Office of the Director, National Science Foundation
Opportunity for Strengthening Graduate Programs
at Historically Black Colleges and Universities
Gary D. Keller, *Dean, Graduate School*
Eastern Michigan University
Increasing the Admissibility of Hispanics Who Take the GRE

Presiding at the session on Graduate Education of Minorities is Anne S. Pruitt, The Ohio State University. *Presenters include (from left), Melvin Thompson*, National Science Foundation, *Philip S. Hart*, University of Massachusetts, Boston *and Gary D. Keller*, Eastern Michigan University.

Melvin Thompson

I am honored to have been invited to participate in the 22nd Annual Meeting of the Council of Graduate Schools in the United States. The purpose of this session is to respond to the question: "What Appears on the Horizon for Graduate Education of Minorities?" Because of the historical contributions of predominantly black colleges and universities to American culture, productivity and vitality, the significance of science and technology in all aspects of our lives and President Reagan's Executive Order on September 15, 1981 expressing the Administration's commitment to strengthen the contributions of black colleges and universities, I will focus my remarks initially toward suggested strategies being considered by leading black colleges. I will also address the importance of graduate education to contributing to the improved quality of elementary and secondary mathematics and science education.

Higher education in general will face many challenges in the years ahead.

These challenges will create pressures on all segments of our student population. Examples of pressures include required resources for financial support, increasing tuition costs, and questionable employment and placement opportunities. Minority students along with all other students must deal with these constraints while at the same time accommodating possible other impediments deriving from inequities in our society stemming from inadequate precollege education, lack of diversity and strength in undergraduate education and limited supportive resources. These problems are all related to conditions imposed by past and present societal and economic injustices. Thus, it is entirely appropriate that the Council of Graduate Schools in the United States provide a forum for us to reflect on and propose new initiatives that will lead to "new horizons for graduate education of minorities."

Predominantly black colleges and universities are a valuable resource in contributing to the quality of educational opportunities for our nation's youth and the conduct of sponsored research. In general, students, particularly those in the sciences and technology, receive better knowledge and learn more if their instructors are actively pursuing new or fundamental knowledge through active research.

In spite of this, we are faced with some disturbing statistics presented in a recent report published by the National Science Foundation about the low level of resources and activities supporting science and engineering programs at black colleges and universities. Although more than 50 percent of the nation's black engineers and 85 percent of black doctors received undergraduate degrees from 105 predominantly black colleges and universities, these institutions received less than one percent of the 1980 federal R&D obligations awarded to all colleges and universities. In 1980, $4.2 billion was awarded to all institutions of higher education; black colleges and universities received only $36 million.

I believe that, if commitments come forth from both industry, and government, there are significant opportunities for predominantly black colleges and universities to strengthen American graduate education and research in the following areas: (1) precollege mathematics and science education programs (2) undergraduate science, engineering and technology programs and (3) graduate science and education programs. Each of these is related and contributes to strengthening the other. Because of the significance of science and technology to economic growth, private sector innovation and international competitiveness and employment opportunities, there are significant challenges and opportunities for minority students and faculty engaged in graduate education and research.

Precollege Mathematics and Science Education

Across the nation, there is an escalating awareness that our educational systems (elementary and secondary schools) are facing inordinate difficulties

in trying to meet the needs of this country in our changing and increasingly technological society. Improved preparation of all citizens in the fields of mathematics, science and technology is essential to the development and maintenance of our nation's economic strength, military security, commitment to the democratic ideal of an informed and participating citizenry, and international competition in mathematics, science and technology.

Colleges, universities and all institutions of higher education through their graduate schools and departments will have an increasingly more important role to play in assisting our educational system. Because of the importance of higher education to precollege mathematics and science education, I will deviate from my prepared remarks to bring you up-to-date on the mission, organization, work and progress of the NSB Commission.

GOALS OF COMMISSION

1. To broaden the pool of students who are well prepared and highly motivated for advanced courses in mathematics, science and engineering;
2. To widen the range of high-quality educational offerings in mathematics, science and technology at all grade levels so that more students would be prepared for and thus have greater options to choose among technically oriented careers and professions; and
3. To increase the general mathematics, science and technical literacy of all citizens for life, work and full participation in the society of the future.

I believe there are several areas where higher education could assist in raising the quality of our nation's precollege mathematics and science educational system. The following are a few examples:

1. Teacher education, certification and inservice training;
2. Modifications in curriculum in mathematics and in several scientific disciplines;
3. Investigation into alternative school organization models such as the one used in Japan where the school year is 240 days contrasted with our 180 day year;
4. New instructional approaches. In general, precollege mathematics and science instruction has yet to take advantage of the advances in technology and behavioral sciences of the past 20 years. For example; computers provide an immense opportunity for innovations and increased effectiveness in instruction;
5. Public perceptions and priorities as they relate to the value of mathematics and science education;
6. Partnerships with industry, school system and professional societies. Examples are in Houston, Philadelphia, Los Angeles, Newark, Atlanta, and Phoenix.

Science and Engineering Education and Research

The National Science Foundation is committed to assisting predominantly minority colleges in strengthening their undergraduate, graduate and research programs. In addition to ensuring that key personnel at small and predominantly minority colleges and universities receive timely program announcements and participate in peer review and advisory panels, the National Science Foundation, in conjunction with the activities of its research programs, has created a Coordinated Agency-Wide Research Activities (CARA) subactivity. To ensure efficient management and appropriate visibility, some programs that span several NSF research efforts, such as programs focused on enhancing the research contributions of minorities and women, are addressed centrally under CARA. The following describe some of the activities under CARA:

1. Research Improvement In Minority Institutions provides funding for improving research environments at participating institutions. The program supports faculty research and the acquisition of research equipment. It also supports cooperative research projects among academic institutions and between academic institutions and industry. This program responds to Presidential Executive Order 12320 issued by President Reagan in 1981.
2. Minority Research Initiation provides increased access to scientific research opportunities by ethnic minority scientists and engineers who are significantly underrepresented in the scientific and engineering career pool. This program provides research support for minority faculty at any college or university who are not presently receiving or have not previously received federal research support.
3. Visiting Professorships for Women provides for increased participation of women scientists and engineers as visiting professors in academic institutions. In addition to expanding research and teaching opportunities, these professors are available to advise and counsel other women in pursuit of careers in science and engineering.
4. Experimental Program to Stimulate Competitive Research provides incentives for academic scientists and industrial leaders within certain states to execute research plans designed to respond to scientific needs and circumstances identified locally.

The Research Improvement in Minority Institutions program established in FY 82 funded four institutions for a total of $907,826. Howard University received $250,000 for basic research in compound semi-conductor materials for microwave applications. Jackson State was awarded $250,000 to establish a chemical physics research program for the study of molecular structure and dynamics. Atlanta University was awarded $229,110 to investigate nonlinear difference equations, matrix methods, and solutions of operator and integral

differential equations. The University of Puerto Rico received $178,716 to purchase a scanning electron microscope with an energy dispersive spectrometer.

The Foundation is collaborating with other federal agencies and organizations in the private sector to strengthen minority graduate education and research opportunities. We are working with the Department of Education's Minority Institutions Science Improvement Program and the Graduate and Professional Opportunities Program.

There is also collaboration with the Department of Defense, Health and Human Resources, and Energy and the National Aeronautics and Space Administration. The Foundation was instrumental in assisting Tuskegee Institute in receiving private support to strengthen its graduate and research programs.

Conclusion

I believe that this nation has a commitment to minority graduate education, as evidenced by this meeting and the numerous programs supported by public and private sources in existence at your universities. With universities and the private sector acting in tandem and government as a catalyst, minority access to and participation in graduate education will increase. The health of graduate education will never realize its full potential until the barriers that limit minority access and participation are removed.

I think it is fitting to conclude with a quote from Dr. John B. Slaughter, former director of the National Science Foundation and currently chancellor of the University of Maryland College Park. Dr. Slaughter, as most of you are aware, is deeply committed to minority access, participation, and excellence. He will address you at the plenary session on Friday.

Dr. Slaughter often stated in many of his meetings with the leadership in the higher education and research communities, "Remember that creativity knows no color line. Ability is not an inherent function of an individual's ethnic background. Intelligence, intuition and insight are *not* determined by one's race. Shame upon us if we do not assure those who follow that opportunity also knows no such barriers." This I believe is the essence of a commitment required for increased participation and achievement of minorities in graduate education and research.

I look forward to the discussions that follow our presentation, particularly as we review strategies and approaches designed to remove barriers to minority access and participation in graduate education.

Gary D. Keller

A way to increase significantly the participation of Hispanics and other minority groups in higher education, including graduate and professional school, is now available although it is so new that it has yet to catch the attention of many deans, admission officers, and faculty.

Until only two or three years ago, the test scores on the GRE, SAT and other standardized instruments were not reported by race and ethnicity. This has now changed with respect to the GRE and the SAT and is likely to change in the near future for other standardized tests as well, making available an alternate measure for admission evaluation, namely, the score that an Hispanic or other minority student achieves within the population of test-takers of that student's ethnic or racial group. As we shall see subsequently in this paper, this alternate measure has great significance in two ways. On the one hand, by reviewing the scores of minority groups disaggregated from the total population of test-takers, we are able to appreciate better the tremendous odds stacked against the admissibility of such students. On the other hand, we are in a position to increase radically the pool of students who deserve consideration for admission if we accept the assumption that for minority students, particularly ethnolinguistic minorities such as Hispanics, some portion of the test score is attributable to the fudge factor of proficiency in the English language, even as the standardized instruments do measure in some degree the aptitude for college work. The reporting by race and ethnicity permits colleges and universities, by means of evaluating the test score of minorities within the distribution of such scores achieved by their own racial or ethnic population of test-takers, to get a sense of the magnitude of this extraneous variable which masks the true abilities of the students in question.

At this time, the two tests that report their scores by race and ethnicity are the GRE, administered by the Graduate Record Examination Board and the SAT, administered by the College Board. The GRE is now in its third cycle of reporting such data. The SAT was reported out for the first time officially in its 1982 report entitled *Profiles, College-Bound Seniors, 1981*. Both the GRE and the SAT are prepared by the Educational Testing Service. The decision to report test results by race and ethnicity was undertaken only after considerable debate. The issue is alluded to partly in the preface to the College Board's *Profiles, College-Bound Seniors, 1981*:

> *The question of whether the College Board should publish aggregated data according to the racial/ethnic characteristics of the students who participate in its programs has been a controversial one since we began collecting such data. Briefly, the honest difference of opinion has been between those who fear that publication of these data will serve to convey a misperception of minority students' ability, and those who believe that exposure of the data to public scrutiny will serve better minority interests by demonstrating the need for (and thus lead to) more affirmative action with respect to access to higher education. We have been encouraged toward the latter position in recent years, first by requests for the data by minority researchers in the aftermath of the* Bakke *decision and, second, by the change of secrecy leveled against test sponsors by proponents of legislation to regulate testing.*

We concluded that in such circumstances the College Board, as a matter of principle, should not impose restraints on access to generalized program data because of our own concept of the public interest. We did so knowing that the question continues to be controversial, and we did so knowing that it is possible for any data to be irresponsibly and incorrectly used and that such misuse is an inevitable risk. Nevertheless, we are convinced that the data, to the clear advantage of minority youth, will serve to illuminate the extent and nature of the educational deficit this nation must overcome (p. iii).

As the College Board points out in the passage reproduced above, there has been an honest difference of opinion between those who judged that reporting these data would lead to misperceptions concerning the true abilities of minority students and those who wanted the data reported in order to "illuminate the extent and nature of the educational deficit this nation must overcome." However, there is an additional issue at hand which requires amplification since it was not addressed by the College Board in its explanation of why the SAT data have only now been officially reported. The fact is that there is evidence to suggest that indeed the SAT does a less adequate job in predicting the abilities of Hispanic youth than it does for the mainstream population. Moreover, it is precisely because of this evidence that use of the alternate score measuring Hispanics against the standard of other Hispanic test-takers, *in addition to and as a supplement to* the usual score, suggests itself as a procedure to reduce some of the content bias in the test scores for the Hispanic population. As the Hispanic Higher Education Coalition (comprising representatives of 13 national Hispanic organizations interested in improving educational conditions for their constituencies)[1] put it in testimony before the Subcommittee on Elementary, Secondary and Vocational Education of the Committee on Education and Labor of the House of Representatives (1980),

> . . . in the GRE, for example, the verbal score of any given woman in the past has been converted to a percentile score based on group scores of women. Men have been given a percentile score based on male performance. Since men, as a group, have scored lower on the verbal GRE, each man is assigned a higher percentile score than any woman who does as well as he on the test, and he receives a higher percentile score than many women who do better than he does. (The converse is true of the quantitative component of the GRE.) The procedure candidly admits that men, as a group, are 'disadvantaged' compared to women, in the verbal component of the GRE and that normalized scores increase their chance to get into graduate school . . . . Just as men and women have been normed differently in verbal and quantitative scores, respectively, we suggest the same process be used for linguistic minority groups. We wish to emphasize both the purpose and the practicality of the suggestion to have test scores normed ac-

cording to identifiable linguistic minority groups. Hispanic Americans should be normed separately, not in accordance with any philosophy of educational separatism, but on the contrary, so that Hispanic students can be permitted access to the prestigious American institutions of higher education in the numbers that their capabilities warrant. The norming procedures that we suggest would control for biases in the testing content that hold back significant numbers of Hispanic youngsters from equality of educational opportunity and access. We want more of our children in the mainstream of American education, and that is why we propose these corrective norming procedures (834-5).

What is the evidence to suggest that the SAT and other standardized tests predict with less accuracy the abilities and achievements of Hispanic students in college and graduate school? Internal research of the Educational Testing Service and the College Board has led to such a conclusion. A major study in this regard will be published by the College Board in the spring of 1983. It is authored by ETS researcher Richard Durán and is entitled *Hispanics' Educational Attainment and Prediction of College Achievement: A Review of Selected Background Issues and Selected Research*. This work finds significantly lower correlations between Hispanic SAT scores and the prediction of subsequent success in the following year as compared with the mainstream population. A complementary finding, however, was the stronger correlation between the Spanish version of the SAT which is administered in Puerto Rico and predicted success. The *Prueba de Aptitud Académica*, an independently prepared test rather than a translation of the SAT, compiled and administered by ETS in Puerto Rico, shows a strong correlation between the score and the predicted success of the test-takers who are native speakers of Spanish. These data have led to a significant decision on the part of the College Board and the Educational Testing Service. They are in the process of revising the claims for the SAT, GRE and other tests with respect to their predictability for Hispanics who take the test. Specific cautions are being introduced in the instructions for test interpretation advising institutions of higher education that special care must be undertaken to evaluate the scores of Hispanics since the studies by ETS and the College Board show less predictability of this population's aptitudes by the tests.

Another development which has high potential for increasing the number of Hispanics admitted into graduate school arises out of the 1982 meeting of the Council of Graduate Schools in Colorado Springs and a conference shortly after that meeting on Latino College Students hosted jointly by the Educational Testing Service and the Institute for Higher Education Law and Governance of the University of Houston. At the CGS meeting, I suggested a valuable research study focused on the possible validation of the usefulness of the "within ethnic population" test scores could be undertaken with the cooperation and participation of a group of selective graduate schools for which test

score data are particularly important, the Educational Testing Service and the College Board, and psychometric researchers, including some affiliated with the Hispanic Higher Education Coalition. Simply put, this research study would admit Hispanic (and possibly other minority students) whose test scores were not sufficiently high for them to be in admission range when compared against the total population of test-takers but whose scores appeared in the top 30th percent of the "within ethnic group" population. Upon admission, the academic careers and academic success of these students would be formally evaluated.

The resultant study would be research oriented and also contain an action program on a pilot basis. On the one hand we could evaluate the specific research hypothesis, namely, that the alternate measure of a test-taker's score as computed with reference to the distribution of such scores *within* his or her ethnic or racial population can be used to great advantage by institutions in addition to and as a supplement to the usual score which reflects the distribution of the entire population of test-takers. The use to which institutions would put this measure would be to admit more Hispanic students capable of doing graduate (or with respect to the SAT, undergraduate) work at the most prestigious and selective universities and colleges. More specifically, a pool of high-achieving students (as measured by the "within ethnic group" test score) would be tapped for admission to selective colleges and universities even though many of them would not have been considered in admission range when only the usual test score would have been reviewed by admission officers. If the research study were to prove successful, in addition to validating the "within ethnic group" test score as an important admissions factor, a pilot group of Hispanic students admitted primarily on the basis of this factor will have been shown to have achieved academic success at selective institutions of higher education.

It should be noted at this point that 1980–1981 GRE data report that approximately a 475 and a 440 on the GRE verbal represent the 70th percentile or above for Mexican American and Puerto Rican test-takers respectively. A score of approximately 575 represents the 70th percentile or above for white test-takers of the GRE verbal. Moreover, only 2150 Mexican Americans and 1282 Puerto Ricans even took the GRE during the period in question. This contrasts with 148,513 whites who took the test during the same period. As stated above, 575 represents approximately the 70th percentile for whites, and in absolute numbers that represents approximately 44,500 test-takers. But, for Mexican Americans and Puerto Ricans, respectively, that score of 575 represents approximately the 90th percentile and the 95th percentile. Seen in absolute numbers, approximately 200 Mexican Americans and approximately 60 Puerto Ricans are competing with approximately 44,500 whites with test scores of 575 or better for the seats available in prestigious graduate schools. I have used the GRE verbal as the point of comparison for the sake of simplicity. Comparable results are obtained in comparing the

GRE quantitative or analytic. The fact that only about 260 U.S. Hispanics obtain a [illegible] on the verbal (which itself is not a particularly high score); if we were to evaluate 650 or better, the number is about 8[illegible]) is cause for despair for ever increasing significantly the number of Hispanics to selective graduate schools if we are to rely on the usual test score without reviewing the "within-group" score. Moreover, such skewed results strongly suggest that the predictability of the scores is less accurate for capable Hispanic students and that the content bias that appears to be reflected in such results ought to be controlled on part by looking at achievement as measured by the "within ethnic group" distribution.

When I made this presentation of the facts and associated recommendations at the Council of Graduate Schools meeting of 198[illegible], the response by some of the graduate deans at several of the most prestigious and selective graduate schools in the nation was notably enthusiastic. In addition to strongly expressed enthusiasm for the concept in itself, it was pointed out that many positive admission decisions were already being made on behalf of Hispanic students along the lines earlier described, albeit on a [illegible] rather than systematic fashion. Participants at the CGS meeting pointed out that although [illegible] Mexican Americans and Puerto Ricans [illegible] significant [illegible] GRE [illegible] students [illegible] GRE verbal [illegible] the most selective graduate schools [illegible] emphasis [illegible] a range of [illegible] of these test takers in [illegible] perhaps [illegible] predictor [illegible] because the scores [illegible] the [illegible] variable of English language proficiency rather than the aptitudes that they were designed to predict. Bolstered by the commitments of several graduate schools to the concept of doing a pilot study that would measure the predictability of the "within ethnic population" test score on the GRE and other standardized tests and by the observation that such procedures now occur within some selective graduate schools albeit in unsystematic fashion, the notion of the pilot study became an object of intensive scrutiny by researchers and administrators of the Hispanic Higher Education Coalition and of the Educational Testing Service during the aforementioned January conference at ETS on Latino College Students. At that conference, in consultation with President Gregory Anrig and research scientist Richard Duran of the Educational Testing Service, a tentative commitment to the project was made which now is in the process of being developed in proposal form and which will also be extended to cover the SAT and which will be submitted to the College Board for its review.

It would appear that the time is ripe for this sort of an experimental pilot undertaking. The [illegible] of data now available for the first time on test scores by [illegible] particularly [illegible] results [illegible] [illegible] and recommending [illegible]

these scores. Similarly, at ETS and the College Board, internal research studies suggesting that the usual score is less prediction worthy for Hispanic students will be published this spring, together with new cautions in the test interpretation instructions that go out to colleges and universities. The enthusiastic response by a number of deans at the 1983 CGS meeting in Colorado Springs is an additional factor. Even the controversy surrounding the new (and newly challenged) rules that the NCAA has voted into effect would appear to strengthen the usefulness and timing of this pilot project. President Anrig and other ETS officials object to the NCAA use of a minimum cutoff score because while it cuts across racial lines it is disproportionately discriminatory to minorities and because the use of a fixed score is counter to ETS policy which calls for the use of multiple criteria in making admissions and other academic decisions. The focus of the proposed pilot study is precisely to validate a second test score in addition to the usual one. This alternate measure could also be put to use for other academic issues such as those being grappled with by the NCAA.

The possible validation of a [illegible] has important implications for the Hispanic community. If selective institutions were to look at the top 30% of U.S. Hispanics as being within admission range, the pool of GRE test takers to be so considered would rise to over 1,000, which may be some 300% larger a pool of students than exists currently, even taking into account the intuitive practices of graduate schools at this time to discount GRE test scores for Hispanics. Another extremely important potential consequence might be the encouragement that Hispanics would receive to take the GRE. At this time the absolute number of Hispanics who take the GRE is absurdly small, 343 Mexican Americans and Puerto Ricans combined. With more likelihood that taking the test will lead to admission at a selective institution, the Hispanic community will correspondingly encourage its youth to compete with more confidence and higher expectations. Thus, the potential exists to truly achieve a multifold increase of Hispanics in selective graduate schools both by expanding the base number who compete on the GRE and other standardized instruments and by predicting more accurately the aptitudes for graduate work of those who do take the tests.

[illegible] ETS [illegible] com-
[illegible] the League of United Latin American Citizens, the Mexican American Legal Defense and Educational Fund, the Mexican American Women's National Association, the National Association for Equal Educational Opportunities, the National Council of La Raza, the Na-

tional IMAGE, Inc., the Puerto Rican Legal Defense and Education Fund, Inc., the Secretariat for Hispanic Affairs, U.S. Catholic Conference, the Society of Hispanic Professional Engineers, and the Spanish American League Against Discrimination.

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V. INTERNATIONAL EDUCATION: WHAT ARE THE ISSUES?

Presiding: Alison P. Casarett, *Cornell University*

Presenters: Robert B. Kaplan, *Department of Linguistics, University of Southern California, and President-Elect, National Association of Foreign Student Affairs*

The Aliens Among Us: Who Are They and What Do They Want?

Craufurd D. Goodwin, *Vice Provost and Dean Graduate School, Duke University*

Foreign Students: Benefit or Bane?

Christopher Paddack, *Chief of Academic Relations Branch, Office of Academic Programs, U.S. Information Agency*

USIA's Office of Academic Programs: Current Issues

At the podium during the *International Education Issues* session is Craufurd D. Goodwin, Duke University. Others who addressed the group were (from left) Cassandra Pyle, American Council on Education; Robert B. Kaplan, University of Southern California and President-Elect, National Association of Foreign Student Affairs; and Christopher Paddack, U.S. Information Agency.

Robert B. Kaplan

[illegible] educational system complete [illegible] and a relatively complete manpower pool. Under these circumstances, as other nations strove to recover from the effects of the war, and later as newly emerged nations sought to achieve greater rates of development, it was not surprising that they should turn to the United States for educational assistance. Regrettably, except for a few isolated congressional imperatives like the Fulbright pro-

gram and the abortive 1968 International Education Act, international education never achieved great prominence in the foreign policy of the United States. Nevertheless, the academic sector responded positively to the perceived needs in international educational interchange, and the larger more cosmopolitan institutions began in the early 1950s to develop elaborated international components.

The initial thrust in international educational interchange was, however, based on a dependency model, that is, U.S. educational institutions saw their role as suppliers of educational services to much weaker systems, and there was no sense of partnership or reciprocation in the educational enterprise. Indeed, it was not until the revolution in world economics which resulted from the energy crisis of the 1970s that any sense of partnership began to emerge. As H. E. Dr. Ghazi Algosaibi, Minister of Energy and Electricity of the Kingdom of Saudi Arabia, put it in one of his recent speeches:

> Ever since development emerged as a field of scientific enquiry thirty years ago, scholars preached that development cannot take place in a society unless that society's system of beliefs, habits of thought and modes of behavior were completely changed. A society had to destroy the bad old ways before ushering in the brave new world. Modernization became synonymous first with Europeanization and then with Americanization. "Westernized" was the highest compliment a condescending West could pay an admiring third world intellectual. Development without Coca Cola was deemed a contradiction in terms.

Despite the somewhat patronizing attitudes of U.S. educational agencies and institutions, foreign students began to stream in to academic institutions in this country at an ever increasing rate; in the late 1940s there were about 25,000, and now we are rapidly approaching half a million. Initially, a few dozen institutions were involved; now virtually all of the 3000+ institutions in this country enroll at least a few foreign students, and a whole language-teaching/test-taking industry has sprung up to serve student needs. As the more sophisticated institutions gradually began to take stock of what they were about—and that taking stock came gradually, since international interchange grew everywhere like Topsy—they discovered that they were engaged in four broad ranges of action:

1. The exchange of students and [illegible] students from foreign countries [illegible] United States as non-immigrant aliens (largely in F and J visa categories, but also increasingly in resident alien and refugee status) and in terms of U.S. students going abroad either in structured "junior year abroad" programs or in unstructured summer migrations.

2. The provision of educational programs in foreign locations in a number of different environments (e.g., programs for U.S. military personnel and their dependents on foreign sites, programs for U.S. students

studying abroad, but also programs for foreign nationals on sites in their own countries;

3. The contracting for the provision of services (staffing, data collection, data analysis, "consulting," etc.) either in the United States or on foreign sites involving foreign academic institutions, foreign governments, U.S. government agencies like AID, etc.;
4. The undertaking of research, sometimes involving formal faculty exchanges, involving U.S. government agencies, foreign government agencies, foreign universities, but also multinational corporations, U.S. corporations doing business abroad, and foreign corporations (some of them trying to sell to the U.S. market).

Because the United States has no central government ministry which has oversight of the education sector – therefore, because U.S. educational institutions tend to be highly individualistic – there is no coherent national response to these several ranges of activity, on the contrary, U.S. institutions responded in various ways – some in highly entrepreneurial modes, others more conservatively. As U.S. domestic enrollment stabilized, after the baby boom cohort of the 1950s had passed through, and as it began to diminish, some institutions began to look upon foreign students as the bearers of tuition funds needed to keep institutions open. As the economy worsened and the usual sources of research funding and of gifts diminished, some institutions began to look to foreign sources for research and service contracts (all with large overhead components), and for direct gifts.

Since there was no coherent central governmental policy, a number of problems gradually emerged. There was no relationship between the admission policies of U.S. institutions and the needs of client countries; there was, in senior graduate research institutions, the problem of technology transfer when such transfer was perceived to threaten national security; there was the issue of the relevance of U.S. education to the needs of individuals from the third world and to the coincident issue that overtraining tended to contribute to the so called "Brain Drain" and thus to run counter to the whole purpose of international educational interchange. This is not to say that the United States should be limited in the benefits it can derive from educational interchange.

It has gradually become clear that the most desirable outcome of international educational exchange should be the achievement of educational self sufficiency on the part of the client countries, particularly when the client countries are themselves striving to achieve development. In one sense, the clear thrust of U.S. educational cooperation ought to occur at the graduate level, that is, for countries which already have an articulated system capable of delivering a first degree of reasonable quality, it is in the best interests both of the client country and of the U.S. education sector to provide services exclusively at the graduate level. Such graduate education opportunities will help to strengthen the undergraduate component, will serve to initiate a strong

graduate education sector, and will serve the needs of development in government, business, and industry. But not all nations have achieved the point of offering a quality first degree; some have achieved competent secondary-level education and are in need of assistance to develop the undergraduate sector. In such instances, U.S. educational involvement should be directed at the undergraduate level in order to develop an indigenous undergraduate delivery system. Logically, it would follow that if a nation has only a well-articulated elementary system, the U.S. educational establishment should help to provide opportunities at the secondary level in order to strengthen the secondary system. In my own mind, it would be inappropriate for the U.S. to admit substantial numbers of international students at the secondary level. To take youngsters away from their parents and their native cultures at an early age and for an extended period would, in my opinion, encourage non-return, tend to deplete rather than strengthen the indigenous educational structure, and tend to interfere with the development of normal attitudes toward family and the essential social infrastructures. There is nothing wrong with short periods of foreign study during the adolescent years. In that context, the Administration's Youth Initiative is to be applauded. But to the extent that periods of study become extended, particularly in an environment in which most of the costs devolve on local school districts, local taxpayers, and individual families involved in the exchange process, it seems to me inadvisable to encourage such exchanges.

Thus, there is a presumption that admissions policies ought to be related to client country needs, at least in the sense that they recognize the level most in need of attention; some countries ought to be encouraged by admission policy to send only graduate students while other countries might be encouraged to enroll limited numbers of undergraduate students. While I am categorically opposed to the imposition of quotas of any sort on international educational interchange, if quotas were to be imposed I would urge that the numbers of graduate students always be greatest and that the numbers of high school students always be slightest.

If graduate students are to constitute the focal point, that focus opens a couple of other problems. At the present time, great numbers of foreign graduate students enter high technology programs. There is a general global myth that high technology holds the answers to all development needs, that high technology will preclude the need ever to get one's hands dirty, that high technology offers the greatest possibility for personal success and, at the accumulation of personal wealth, and that high technology will as a matter of course contribute substantially to the elevation of the standard of living. But these are mythologies. There are, then, only two substantive issues involved: one of these issues has to do with the question of the relevance of education, the other has to do with the narrowness of education.

Foreign students studying in high technology programs in the United States receive an education that is predominantly directed at the uses of high tech-

nology *in* the United States. That is as it should be; after all, the U.S. educational system was created to serve the needs of those who live *here*. But it is clear that the principles of science are universal, not restricted by political geography; it is equally clear that the applications of science *are* influenced if not by political geography at least by local conditions. One response to the recognition of this distinction has been the emergence of what is known as "Appropriate Technology," in itself a most useful concept, but one sometimes perverted to mean "second-class education for foreigners." To the extent that graduate schools can introduce the concepts of appropriate technology without simultaneously depreciating the curriculum, they should, because the concepts will strengthen not only programs for international students but also those for U.S. students. But, in a sense, the differentiation of educational programs really is not the issue. A distinguished group of educators involved with international educational interchange meeting in Snowmass, Colorado, last June, in a symposium exploring the role of the foreign student in the development process, urged unanimously

> that students from developing [illegible] education training that is essentially the same as that provided to all students, although it is desirable to design educational experiences or admissions policies that take into account the particular socioeconomic or educational conditions of students' home countries and enhance the value of their formal training;
>
> that the education training of students from developing countries should contribute to the creation of infrastructures for national development and for the self-sustaining development of education, science, and technology capabilities;
>
> and that the faculty should understand the value of helping foreign students to select those particular courses that might help the content of the core curriculum to be applied most productively in the special conditions that prevail in the student's home country—specifically that faculty recognize the desirability of added work in management or administration, and the importance of recognizing the kinds of responsibilities that the individual student is likely to assume along with his technical or scientific work.

[illegible] case of the foreign student, to *add on* pertinent work in the application and in the management and administration of science and technology.

At the same time, because students tend to enter high technology programs, their education training is highly specialized. Domestic students have received a broad liberal education before they enter graduate high technology programs. But students coming with a first degree from other countries may not have received this broadly based exposure to liberal education. It seems self evident that scientists be able to think about the social, eco-

nomic, ecological, political, cultural, and humane issues which are implicit in every scientific and technical advance. It is also self-evident that the leaders in other sectors of society need to be able to think about the implications of development. These issues recommend two different routes for foreign students: on the one hand, the requirement of some greater involvement of the foreign high technology candidate in the social sciences and humanities, and on the other hand the conscious and careful recruitment of foreign students into social science and humanities programs. The careful recruitment of international students into social science and humanities can be productive of the most beneficial influences in the social sciences and humanities because the introduction into those disciplines of the need to deal with problems in non-European and non-Western environments may result in the evolution of larger and more sophisticated theoretical approaches.

One cannot talk about international educational interchange without at least touching on the economics of the situation. Again, the United States as a nation has never examined the cost effectiveness of international education activities. The evidence, such as it is, suggests that educational exchanges are beneficial for the United States, and that foreign students constitute an important "export" for the United States in the sense that they are sources of "new" money entering the U.S. economy. Foreign students do not only pay tuition; they purchase—for the most part with "new" foreign funds—housing, food, transportation, entertainment, clothing, books, various consumer goods, etc. Foreign governments maintain substantial establishments in the U.S. whose sole purpose is to look after foreign students; for example, the Saudi government maintains in Houston the Saudi Arabian Educational Mission which employs some 280 individuals (many of them U.S. citizens), rents a building for the operation, and pays a substantial amount of direct and indirect tax. Foreign students do not only fill empty seats in diminished classes, they provide employment for a class of academic staff who serve their needs. And the students also contribute direct and indirect tax revenues to the communities in which their institutions are embedded.

Because international educational activities have never been seen as important by the federal government, few careful studies of the cost effectiveness of these exchanges exist. What little hard evidence[6] does exist suggests strongly that there are economic as well as social benefits. But there remains a need for additional careful study of costs and benefits so that U.S. academic institutions may have a better basis on which to make decisions concerning international educational exchange programs. Currently, there is a built-in discrimination in the exchange process. Institutions charge international students on the basis of existing fee structures without respect to any added costs that may be associated with services to foreign students and without respect to the country of origin. It is clear that the education of foreign students is more expensive than the education of domestic students, though the amount of the difference is unknown. At present, in public institutions, the differential is

defrayed by taxpayers. I think U.S. taxpayers ought to invest in international education as they invest in other elements of education and of foreign policy; I doubt that most U.S. taxpayers would agree with me, and it is perhaps good that they do not know the extent to which they subsidize any aspect of education and particularly international educational activities. But more careful study of the real difference in educational cost might lead to a more equitable distribution of that cost between the student served, his home government, and the local U.S. taxpayer. Further, it is clear that the home countries (and the home economies) of the foreign students are differentially able to support the costs of U.S. education. It seems to me that we need to treat countries as we now treat individuals, that is, those who are able to pay should be expected to contribute according to their greater ability, while those who are not able to pay should be subsidized to the extent that the system is able to provide subsidy. A clearer understanding of the economics of international education might enable U.S. academic institutions to charge more appropriate and more equitable fees to students from countries able to afford the cost and might enable the U.S. government, interested organizations and foundations in the private sector, and academic institutions to provide some fair proportion of resources to subsidize able students from the poorer nations.

International educational exchanges have been going on in their current mode for more than thirty years. (In a more general sense, of course, they have been going on since the dawn of recorded history.) During this recent period, the relationship between the United States and the countries whose students seek education here has changed to such an extent that the educational institutions in this country and the government now confront a new period with fresh questions and fresh opportunities. The answers of the 1950s are no longer applicable either to the basic processes of education or to the relations among nations. There have been profound changes in the world in which we live, and both our view of others and our view of ourselves must reflect an awareness of those changes. It is necessary to evolve new sets of relationships among academic institutions, professional associations, the scientific and educational communities, the private business sector (including organized labor), government, and the foreign clients for educational services. International educational interchange at all the levels described above will be influenced by these changes and will in turn have an influence on the changes in process.

At the [illegible] of the world's population has accounted for one-third of the world's formal educational resources, it has willy-nilly become education broker to the world. The policies evolved by U.S. educational institutions will inexorably affect the pace of development for much of the rest of the world, and the support given those educational policies by all sectors of the economy will as surely affect the success or failure of those policies.

To return to the questions in my title: who are they, and what do they

want—I hope the answers have become somewhat more apparent. They are the aspiring young of the developing world; they seek the opportunity to share equitably in a better life and the opportunity to build their nations' own indigenous capacity to maintain equitable access through education. They are less exotic than they first appeared. Indeed, to paraphrase *Pogo* of comic-strip fame, "We have met the aliens, and they is us."

Crauford D Goodwin

[illegible] education has had almost everything [illegible] way. The demand for its products has risen steadily. The numbers of college-age youth have grown, and these growing numbers have chosen to enroll. Just as the market for education has remained buoyant, the demand for the other products of colleges and universities has grown vigorously. Academic research has been perceived as the answer to productivity decline, unemployment, and external threat. And to make it all especially easy, public and private largesse provided [illegible]ctly has proceeded as in substantial part from the direct test of the market. Agreeable as these conditions were for those of us who lived through them, they were not the best preparation for adversity. In particular the fat years did not provide the discipline to take advantage of opportunity.

At the graduate level the good times taught us that the world would beat a path to our doorstep (or, more accurately, to a multitude of doorsteps within the graduate schools and divisions). We have depended in the main on entrepreneurs in our various departments and programs to solicit training grants, hustle foundations, find the necessary students, and in other ways, make graduate education work. We have assumed that these persons could be counted upon to do what was necessary and right, and not to do what might be harmful overall.

The last few years have given us reason to question this assumption. As student interest and external support have declined or at least faltered, we have seen programs suddenly wither. And where opportunity seemed great we have been puzzled to see lethargic response. In consequence we are called upon now to look to our affairs and to inquire if, overall, we are making the best use of our resources and our circumstances.

The foreign student on our campus raises all of the questions about management of our affairs in bold relief. The facts by now are well known. Numbers have been rising steadily, by official IIE count doubling each decade to a total this year of more than 325,000. My impression is that these numbers in fact are an undercount. Data are supplied to IIE voluntarily, and as criticism of the foreign student presence on some campuses has mounted, the incentive to forget some of the bodies there mounts. But it is not so much

the total numbers that arrest our attention as where they are located. In many of our graduate programs in engineering and science foreign enrollments now often reach 70 or 80 percent. Some institutions have become virtually dependent for their survival on students from abroad. Moreover the foreign students can be found in significant numbers almost everywhere, from the community college to the great research university, in the public sector and in the private, in distinguished institutions and in not so distinguished ones.

I have headed these remarks with a question, "foreign student, benefit or bane?" My two part response to this question is first that the answer must be particular to each institution and second that few institutions know the answer with confidence. This ignorance may be costly for two reasons. First, because the foreign student presence has become so controversial in state legislatures, boards of regents, and other centers of authority, institutions of higher education should be prepared at all times to face the possibility of punitive action. If they cannot explain persuasively their current practices they may find these practices abruptly altered by forces outside their walls. Over the past two years several state legislatures have mandated studies of the proportion of foreign students in some programs. Such demands for information are often only a short step ahead of action. The second reason why it may be costly to ignore this subject is because of the opportunities that may be neglected. This is a time when, for reasons I shall now mention, foreign students may be the answer if not to a maiden's prayer at least to a graduate dean's headache.

Significant aspects of the foreign student situation at the graduate level are the following. First, it involves parts of the graduate educational process which are by strong tradition the province of individual departments, programs and schools, such matters as recruitment, selection and admission, financial aid, employment in undergraduate education, and placement after graduation. Second, it requires imaginative and responsive planning, a process with which these same departments and programs are not especially comfortable. And third, it may require a volume of sophisticated data and analytical techniques which it is not practical for small units to master on their own.

[illegible] possibly [illegible] to the nation at large, the education of foreign students may be an export industry of unequaled success in this era of recession or an instrument of foreign policy. For the undergraduate college the foreign student may provide a cosmopolitan perspective to Americans' contact with the world at a price that cannot be equaled by the alternatives, such as study abroad. For the professional school the foreign student may constitute an international dimension duplicating the environment into which the graduates will emerge. To the communities in which the colleges and universities are located the foreign student means apartment rentals and used car sales. But

what of the graduate school? Here it seems to me the evaluation must be quite complex.

The economic impact, it may be readily observed, is very important. Foreign students may fill empty classrooms and laboratories, serve as research and teaching assistants below the wage such persons would command if employed through the marketplace. They may also bring extra costs for special advisory services, overseas recruiting, English language and other programs, and hand-tailored care and attention. How the economic calculation turns out will depend upon the particular circumstances of an institution and upon the real charge made to the foreign student *net* for tuition and fees.

An extremely valuable use to which foreign students have been put in the past at the graduate level and may be again in the future is as "filler" (to use an unnecessarily pejorative term). During periods either of demographic failure or of change in fashion foreign students may keep alive programs of training and research which have long run value and viability but face short run crises. Certainly many graduate programs in engineering and the sciences are in this condition today and might well be closed down if it were not for their constituents from beyond our shores.

The educational costs and benefits of foreign graduate students are [illegible] apt to be subtler than the economic ones. As in the case of the undergraduate college the foreign graduate student may enrich the classroom with a different perspective, values and experience. Moreover, if carefully selected they may raise the quality as well as the numbers of students.

The educational costs are relatively intangible and often are taken into account by faculty with some reluctance. First, foreign students with language problems and other difficulties of adjustment may slow the pace of classroom activity. If this is serious enough it may even deter American students from enrolling in classes with a foreign preponderance, thus compounding the problem. Some faculty also complain of attitudinal differences between foreign and U.S. students accentuated when the foreigners are clustered from a few countries. Second, foreign students are often ill prepared or unable ever to take as effective a part as American graduate students in the undergraduate education with which much of our graduate education is inextricably entwined. Indeed complaints about incomprehensible foreign tutors or unsympathetic lab instructors are the butt of the worst press received by foreign students in this country. Any institution which regularly places foreign graduate students in the undergraduate classroom should face this problem squarely and take steps to solve it through special training sessions, careful testing, and other means. Some thoughtful faculty are prepared to estimate the enrollment proportion of foreign students where educational costs clearly begin to exceed educational benefits. Most estimates range from twenty to fifty percent, proportions not at all unusual in some areas.

Let me emphasize once again my conclusion that in my view no single and simple set of answers can be provided to these questions for more than one

institution, or indeed for more than one graduate program. Our task as academic administrators should be to make certain that inquiry is indeed undertaken, that the full range of questions is posed, and that honest efforts are undertaken to find answers. For what it is worth it seems that institutional attention to this subject cannot be stimulated before the numbers of foreign students reach 5-10%. Too many other issues command the stage. But this point is none too early to get started because by that time crises may not be very far off, and only through serious inquiry can the institution know whether their own particular foreign students are benefit or bane.

[illegible]

[illegible] the [illegible] [illegible] [illegible] U.S. Information Agency [illegible] the [illegible] to reach out and establish [illegible] direct linkage with [illegible] counterparts in the American private sector.

Clearly the [illegible] public service are seeking ways to [illegible] direct contact with the constituencies [illegible] present in Washington and abroad. The other side of the process is that increasingly the U.S. private sector is being brought into the operations, as advisors and as partners, in making programs more effective and more congruent with American reality.

A number of examples could be given. U.S. Information Agency Director Charles Z. Wick has created a series of advisory committees made up mostly of private citizens to advise on subjects ranging from libraries to ethics to international educational exchange. He recently created a task force that is seeking to expand international youth exchange from a present level of about 5,000 a year to and from other countries and the United States to 35,000 a year over a period of five years. To this end, a presidential committee of corporate chief executive officers has been formed to expand the network of voluntary agencies and host families needed to make this expansion possible. The presidential committee will also seek private sector funding to match U.S. government investment in the program on a two or three to one basis.

Another office in the Agency, the Private Sector Office of the Bureau of Educational and Cultural Affairs, has extended grants to organizations like Partners of the Americas, Sister Cities International, the U.S. Youth Council, the Asia Society, the American Political Science Association, the Media Institute, the African American Labor Center, etc.

As you can see it is a radically republican enterprise in its intention and objectives. That is to say, its function is the "res publica," the people's business, in relation to other nations of the world. The USIA divides its operations broadly along lines of those that are information (for example, the

Voice of America, press, TV and films) and those that are cultural (speakers, exhibits, performing arts).

The Office of Academic Programs is in the cultural side of the USIA. Its principal program is the Fulbright exchange program which has been functioning since 1946 when the Fulbright Act was passed by the U.S. Congress. Under the aegis of this far-seeing legislation and its successor law, the Mutual Educational and Cultural Exchange Act of 1961, the Office of Academic Programs encourages the exchange of ideas, views, philosophies, and, we hope, the wisdom of people across our national boundaries to other peoples of the world, and, from them to our own.

The structure of the Office tells part of the story of how this is done. By far its largest component in terms of human and material resources, the Academic Exchange Division of the Office administers a program under which more than four thousand scholarships are awarded annually to American students, teachers, lecturers, and researchers to work in another country for a period of time, and, to foreign nationals to engage in similar activities in the United States.

The Division is organized along regional lines with branches overseeing the operation of the academic exchange program in the five principal regions of the world: the East Asian and Pacific, Near Eastern and South Asian, African, American Republics, and European regions. In thirty-six years of the program there have been more than 130,000 "Fulbrighters," 45,000 from the United States and 85,000 from abroad. The budget for this Division in fiscal year 1983 is about 46 million dollars.

A program in this division of the Academic Office is helping American universities to establish linkages with institutions of higher learning in other countries. Beginning on an experimental basis in fiscal year 1982, this office established direct university to university linkages between U.S. and foreign institutions of higher learning in ten African and three North African countries. Each pair of institutions will receive fifty thousand dollars over a two to three year period to cover the cost of travel and supplement the salaries of the scholars and researchers exchanged between them. In fiscal year 1983, the number of countries in this program will be expanded to thirty.

There is no doubt that the Fulbright program is the premier international educational exchange program of the world. Over the years its prestige has been enormous. Dr. James A. Perkins, former President of Cornell University, has stated that the Fulbright Program is the flagship of our professional exchange programs. Arnold Toynbee wrote that "Along with the Marshall Plan, the Fulbright Program is one of the really generous and imaginative things that have been done in the world since World War II."

Another division of the Office of Academic Programs is the Student Support Division. It is concerned primarily with the development of programs for non U.S. government sponsored students from other countries who seek higher education in the United States.

The reality it addresses has to do with the fact that increasingly the United States is becoming the world's campus. In 1982, more than 326,000 foreign students were reported in U.S. colleges and universities, only a small fraction of them (2.3%) under U.S. government sponsorship. By far the largest source of funds supporting foreign students (66.9%) was personal and family resources. Upon their return home, many students assume positions of leadership and influence in their societies. Services, therefore, are provided under the Fulbright program to improve the quality of their exchange experience. These services range from an intricate network of foreign student counseling services to grants for the production of materials and audio-visual aids to support these services.

The newest division in the Office of Academic Programs bears the inadequate name of Division for the Study of the United States. It is really more than that and is in the process of becoming *much* more. The creative edge of the communication process involves primordially a reaching out to learn what the world is beyond oneself. What happens on the personal level is applicable also to academic institutions. Given the potential for communication through existing and rapidly developing technologies in the world, the university must, if it is to survive, reach out to become a "multiversity."

Academic Specialists Program is an important element in meeting the objectives of the Fulbright exchange program. On the basis of requests from overseas institutions or USIA posts abroad, specialists are sent to other countries for a period of two to six weeks to advise or consult with foreign educational institutions on specific problems or issues, or to teach in short-term seminars or workshops. Fields of expertise for these grants include, but are not limited to curriculum development, university administration, student counseling, English as a foreign language, American studies, library science, and educational planning. In fiscal year 1982 ninety-four grants were awarded with a budget of $395,000.

At the same time, a larger, often unspoken mandate of the USIA from the American people is that the United States be understood by other peoples of the world. This need is being met, in part, by a branch fostering the study of the United States by other nations. It does this by providing funds for special publications such as a directory of U.S. studies and an annotated bibliography of major works on American society and culture. Incidentally, the General Counsel of the U.S. Information Agency recently authorized the publication and distribution of the latter in the United States. One of the anomalies attending the USIA is that in fulfilling its communication mandate, it is specifically prohibited from distributing its products to the American people. Abroad, this branch assists universities and secondary school systems in planning and developing U.S. studies programs. In the United States, it facilitates relations between foreign and domestic scholars who specialize in American subjects.

The newest of the branches in the new division, the Academic Relations

and Program Development Branch, responds to the need to reach out, absorb ideas from the U.S. academic community, respond to questions from foreign institutions of higher learning, and, most importantly, formulate and test suggestions for improving established programs and creating new ones to meet the communication needs of the United States in academic fields.

The first of these functions is carried out through personal and written communication with the most important institutions of higher learning, associations and councils representing the U.S. academic community.

The second is a support function for USIA posts overseas. The branch assists in responding to foreign inquiries about the world of higher education in the United States, and, in channeling inquiries to appropriate U.S. counterpart institutions, associations, and organizations.

The final function is related to the first two and represents the creative edge of the research and development function of the Office of Academic Programs. Suggestions are structured and channeled for consideration by the Director of the Office of Academic Programs. In the development phase, ideas are tested through consultation with representatives of American and foreign worlds of higher learning.

An example of the development function is to be had in the branch's work in supporting the activities of a newly established Advisory Panel on International Educational Exchange. Established by the Director of the U.S. Information Agency in June, 1982, this largely private sector group will meet over a period of two years, to undertake the following:

1. Devote the first year of its activities to gathering and studying information on international educational exchange activities in the United States and selected foreign nations.
2. Devote the second year of its activities to defining: (a) how international educational exchanges serve the national interest, and (b) what recommendations to make to the Director of the U.S. Information Agency regarding the best instrumentalities in both the government and the private sector to serve this interest.
3. In order to achieve the purpose stated in number one, the Advisory Panel has asked for research to determine the purposes, magnitude, and format of international exchange programs in each of the following sectors in the United States: (a) the U.S. Government, (b) the private non-profit sector, (c) the private-for-profit (corporate) sector, and (d) higher education.
4. Finally, in order to achieve its purpose, the Advisory Panel has decided to learn as much as it can about the purposes, magnitude, and format of international educational exchange programs in other countries.

Finally, I'd like to try out an idea on you and ask for your comments. One of the problems we hear about from the U.S. scholarly community has to do with access abroad to sources for research. All too often the independent researcher is seen by other countries as an exploiter of national intellectual and

cultural treasures. These nations complain that there is no adequate return to them for allowing foreign scholars access to their sources. One Advisory Panel member suggested that if a globe of the world open to research scholarship in 1920 were compared with a similar globe showing areas available today, the open parts of the world would have been strikingly diminished.

The idea, then would be to address this problem in part through the Fulbright country proposal process and the new university linkage program in the 42 nations of the world having binational commissions administering the Fulbright program. Using the communication channels already existing, we would ask U.S. universities for project proposals to be carried out in collaboration with specific foreign universities or centers of learning. The Fulbright Commissions abroad would get these proposals and then, having chosen which project to support, would negotiate the terms of scholarly access and research with the foreign institution involved. The Office of Academic Programs would facilitate the realization of these collaborative research projects under the terms of the university linkage program.

It would be very helpful to us to have your ideas in working out possibilities for ideas such as this one. Would such an initiative prove useful to you? Please let us know.

Underlying all of this presentation is the belief that there is no substitute for hands-on experiences abroad in developing the sensitivity that must precede effective communication with other nations. The increasing multipolarity and inter-connectedness of the world make the development of such sensitivity in a larger number of Americans one of the nation's most important current interests.

The Office of Academic Programs wishes to hear from you as it tries to work toward the means for meeting these national interests as effectively as possible.

Attendees sharing ideas between sessions.

VI. PROFESSIONAL GRADUATE PROGRAMS/DEGREES

Presiding: Jussi Saukkonen, *Dean, College of Graduate Studies, Thomas Jefferson University*

Presenters: Peter D. Syverson, *Operations Manager, Doctorate Records Project, National Research Council*

Practical Categorization of Doctoral Degrees: The Experience of the NRC's Survey of Earned Doctorates

X. J. Musacchia, *Dean, Graduate School, University of Louisville*

Role for Graduate Schools and Professional Doctorates

Peter D. Syverson

I am pleased to be here today discussing an issue we believe is important to the way the National Research Council's annual Survey of Earned Doctorates is administered. My role on this panel is to present an operational view of the system developed in the survey program for categorizing degree types, and a glimpse at the data generated by that classification system. We are very interested in comments you may have about this system, particularly any suggestions for improvement of the survey process.

By way of introduction, the Survey of Earned Doctorates is an annual survey of all new doctorate recipients from United States universities. Questionnaires are distributed through the offices of the graduate deans and filled out at the time the individual completes all requirements for the doctoral degree. Research and applied-research doctorates in all fields are included in the survey, but first level professional degrees such as the M.D., D.D.S., O.D., D.V.M., and J.D. are not. Due to the excellent cooperation of the graduate offices, the survey response rate has remained steady at about 96%.

Our degree categorization "system" begins with a two-stage process used to decide whether a doctoral-level program should be included in the survey. First, project staff determine whether the doctoral-granting institution is fully accredited by the appropriate regional authority. If the institution is found to be regionally accredited, a letter is sent to the graduate dean asking whether the program results in a research or a professional doctoral degree. Programs that are both regionally accredited and that produce research doctorates are included in the survey.

In our correspondence with the graduate school, the following definition of a research-doctorate program is used.

> The research doctorate is defined as a degree requiring the completion of a dissertation or equivalent project of original work and not exclusively intended as a degree for the practice of a profession. If the degree program

culminates in a research degree with requirements equivalent to those expected of the Ph.D. and whose primary purpose is research rather than practice its graduates should complete the survey questionnaire. Graduates of a degree program which is solely intended as a professional standard should not be included in the survey.

Use of phrases "not exclusively" and "primary purpose" in the definition leads the survey, we hope, to be more inclusive than exclusive. That is, if errors are made, they will be made on the side of "over-including," rather than excluding a program or institution that should be rightfully involved in the survey process.

One result of the above definition, and of the enormous diversity among U.S. universities, is the large number of degree types covered by the doctorate survey. The many types of degrees now included in the survey (see Exhibit 1) encompass nearly every doctoral discipline, from the physical sciences, engineering, life sciences, and social sciences to the humanities, arts, education, and applied fields. In contrast to the 47 degree types listed in Exhibit 1, only four degrees—Doctor of Health Science, Doctor of Mental Health, Doctor of Missiology (the study of missionary work), and Doctor of Psychology—have been found to be degrees of a professional nature that should not be included in the survey.

A further problem encountered in dealing with degree titles is that different universities have widely varying views of the same degree type. For example, we know that the Doctor of Ministry degree is considered by some institutions to be a research degree and by others to be a professional degree. A sample listing of institutions whose Doctor of Ministry degrees are included in the survey as research doctorates, and those whose D.Min. is a professional degree—and accordingly not included—is shown in Exhibit 2.

Data resulting from the Survey of Earned Doctorates on types of degrees are displayed in Exhibits 3 and 4. The first of these charts shows the major types of degrees earned by doctorate recipients over the 1975 to 1981 period. Notice first that the Ph.D. is by far the dominant degree type, with approximately 85 percent of all new doctorates receiving this degree. Combined with the Ed.D., which is earned by about 12 percent of the doctorate recipients, these two degree types account for nearly all (97 percent) of doctoral degrees granted in this recent period. The remaining 3 percent is composed of degrees of other types, the D.A., D.M.A., and the applied-research doctorates summarized by field of study in the lower half of the table. Of these applied-research doctorates, the most frequent degree types, with the number of degree recipients in 1981 shown in parentheses are as follows: Doctor of Business Administration (139), Doctor of Social Work (102), Doctor of Public Health (69), and Doctor of Nursing Science (31). It is important to recognize that even the largest of these, the D.B.A., accounted for only a tiny fraction of the 31,319 doctorates earned in 1981.

A second point to note from Exhibit 3 is the stability of the proportions of degree holders of each type over the 1975–1981 period. Other than a slight (1.3 percent) rise in the proportion of Ed.D. degrees and a corresponding decrease in proportion of Ph.D. recipients, there has been almost no change in categories of degrees over the past seven years. I should mention that because it takes upwards of six years for a new doctoral program to produce its first graduates, degree programs developed in the last decade are not likely to be reflected in these data.

The final chart shows in another way the preponderance of Ph.D. and Ed.D. degrees among 1981 doctorate recipients. The expanded slice of the pie chart illustrates the relative proportion of applied doctoral degrees among the field groupings: the social science area—which includes the doctors of social work, public administration, and business administration—occupying the largest share of applied-research degrees. To conclude, I would like to leave you with two questions. First, for the Survey of Earned Doctorates program, do you feel that our inclusion exclusion decisions have been about right? Are mid-course corrections needed, or do you think our definition and its application are consistent with your perception of the research doctorate?

The second question—more closely aligned with the purposes of this panel—concerns how one might go about establishing the difference between research and professional doctorate programs. I believe that it is clear from our experience with the doctorate survey that the interrelated problems of the proliferation of degree types and the conflicting views universities have about the same degree title tell us that type of degree is probably not a key principle in differentiating research from professional doctoral degrees. What remains then for this panel to use? I suspect that the answer is not in degree titles, but in the different educational process a student undergoes in attaining either a research or professional doctorate. I understand that my fellow panelists, particularly Lee Jones, are likely to explore further this issue of educational process in their presentations.

Titles of Degrees Included in the Survey of Earned Doctorates

DAS	Doctor of Applied Science	DM	Doctor of Music
DArch	Doctor of Architecture	DMA	Doctor of Musical Arts
DA	Doctor of Arts	DME	Doctor of Music Education
DBA	Doctor of Business Administration	DML	Doctor of Modern Language
JCD	Doctor of Canon Law	DNSc	Doctor of Nursing Science
DCJ	Doctor of Criminal Justice	PhD	Doctor of Philosophy
DCrim	Doctor of Criminology	DPE	Doctor of Physical Education

EdD	Doctor of Education	DPS	Doctor of Professional Studies
DEng	Doctor of Engineering	DPA	Doctor of Public Administration
DESc	Doctor of Engineering Science	DPH	Doctor of Public Health
ScDE	Doctor of Engineering Science	DRec or DR	Doctor of Recreation
DEnv	Doctor of Environment	DRE	Doctor of Religious Education
DED	Doctor of Environmental Design	DSM	Doctor of Sacred Music
DFA	Doctor of Fine Arts	STD	Doctor of Sacred Theology
DF	Doctor of Forestry	DSc	Doctor of Science
DGS	Doctor of Geological Science	DScH	Doctor of Science and Hygiene
DHS	Doctor of Health and Safety	LScD	Doctor of Science and Law
DHL	Doctor of Hebrew Literature	DScD	Doctor of Science in Dentistry
DHS	Doctor of Hebrew Studies	DScVM	Doctor of Science in Veterinary Medicine
DIT	Doctor of Industrial Technology	DSSc	Doctor of Social Science
SJD	Doctor of Juridical Science	DSW	Doctor of Social Work
JSD	Doctor of Juristic Science	ThD	Doctor of Theology
DLS	Doctor of Library Science		
DMSc	Doctor of Medical Science		
DMin or DM	Doctor of Ministry		

Programs in Doctor of Ministry

Included from:
- Catholic University
- University of Chicago
- Midwestern Baptist Theological Seminary
- New Orleans Baptist Theological Seminary
- Southwestern Baptist Theological Seminary
- Western Conservative Baptist Theological Seminary

Not Included from:
- Andrews University
- Aquinas University
- Biola University
- Boston University

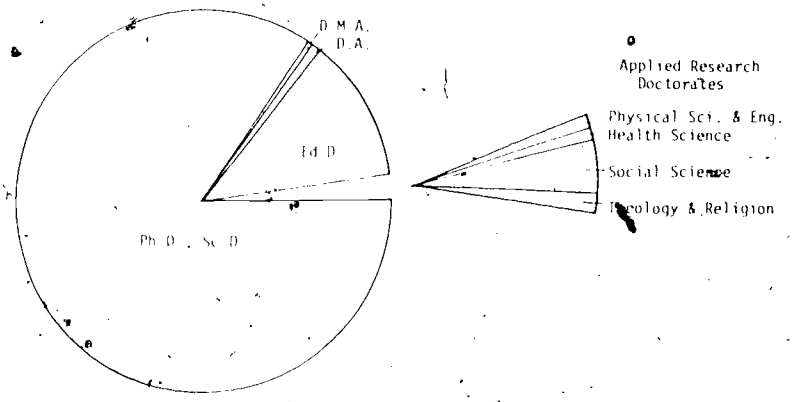
Drew University
Princeton Theological Seminary
Southern Baptist Theological Seminary
Texas Christian University
Union Theological Seminary, Virginia

Type of Degree Earned by 1975-1981 Doctorate Recipients

	Year of Doctorate			
	1975	1977	1979	1981
Total Doctorates	32,951	31,718	31,235	31,319
Ph.D., Sc.D.	86.2[1]	84.9	84.6	84.6
D.A.	0.3	0.3	0.3	0.3
D.M.A.	0.7	0.8	0.8	0.7
Ed.D.	10.9	11.9	12.1	12.2
Other Applied Research Doctorates				
Physical Sci & Engin.	0.2	0.3	0.2	0.2
Health Sciences	0.3	0.3	0.3	0.3
Social Sciences	1.0	1.1	1.2	1.2
Theology & Religion	0.4	0.3	0.4	0.4
All Other	0.1	—	—	—

[1]Percent of total.

Source: NRC, Office of Scientific and Engineering Personnel, Doctorate Records File



Type of Degree Earned by 1981 Doctorate Recipients

X. J. Musacchia

During a five year career as a graduate dean, I have come to the conclusion that there are several features that are common to every graduate office. One role which seems consistent, the one we openly and privately speak of and adhere to, is that of administrating and being responsible for the quality control of master's and doctoral programs. In short, we are responsible for the status of graduate courses and graduate programs. We also accept some professional school courses as being consistent with the objectives of advanced training for graduate students.

Most of us are identified with a graduate faculty; that is, we have the responsibility for evaluating the quality of those members of the faculty who teach in our graduate courses and who examine and certify the quality of graduate students for advanced degrees. Most of us have (in addition to responsibilities for graduate programs and graduate faculty status) numerous and varying roles with reference to research programs.

Most graduate deans are also the campus research administrators. Because research is integrated into graduate programs, we often have a significant role in influencing the direction of campus research. Some of our offices are graced with stronger titles which appropriately address greater organizational control of research opportunities including grant and contracts accounting.

Having identified the fact that we graduate deans have varied responsibilities, I can come to the focus of my perceptions of a current problem: the emergence of professional doctoral programs. The subject has been touched upon by the Council of Graduate Schools and other organizations for about two decades. Much of the background is already known to most of you; however, I recommend the materials presented in 1980 when we had a session entitled: "The Professional Doctorate." In that session four speakers discussed, rather thoroughly, the variations and distinctions between the professional doctorate and the traditional doctorate.

I have no difficulty, for the sake of discussion, in referring to the *professional doctorate* as being the *applied doctoral degree* and the *traditional doctorate* as being the *classical research-oriented academic degree*.

What then is the problem? Basically, the problem is that with the advent of more professional doctoral programs there is a need to identify the proper administrative responsibilities. There are numerous reasons for these programs, not the least of which are the external pressures to do problem-oriented work in response to national and societal needs. There are many technical, sociological, and service-oriented problems facing society, and the universities are being called on to investigate and to provide answers. The immediacy of societal problems has stimulated the development of programs which are oriented away from the traditional master's and doctoral degrees. These include, but are not limited to, doctorates in engineering, nursing, education, business administration, and social work.

There appears to be widespread understanding of the nature of the classical Ph.D. degree, so we won't belabor that. On the other hand, many of us have some rather fuzzy thoughts about applied doctoral degrees. As an example consider the Doctorate in Engineering (D.Eng.). From discussions with engineering colleagues I learn that in addition to a program of core courses there is often an internship in a local industry wherein the student has hands-on experience and learns to participate in practical, problem-solving projects. There is no doubt that this is a form of research. Would it qualify for a traditional doctoral degree? The response is: in all probability, NO. The need for problem-solving engineers with advanced training is in no way questioned, and perhaps a D.Eng. is the best approach to meet current professional needs. There are, however, a host of individual problems involving mentors, adjunct professors, freedom of publication, rights to research results and other industry university relationships. My concern is not only with our ability to assess the quality of the practical research, but also our capacity to include industry experts as adjunct professors to teach courses, to serve on program and examining committees, and to guide research projects that permit students freedom of communication. The question is, in what university office does jurisdiction and control of these programs reside?

I am not suggesting that such problems are insoluble. I am suggesting, however, that the graduate dean be involved in decisions concerning the administration of applied doctorates, and that the management and administration of these advanced graduate degrees be in the graduate office.

My position in a discussion of professional doctorates and traditional doctorates is not that one is more important than the other. Both types of degrees have their intrinsic and independent values. I no longer see a sharp distinction between applied and basic research, or between the training required for a professional appointment in industry or government, and a traditional appointment in the academic teaching research community.

At the University of Louisville we recently developed an Ed.D. that deals principally with the "Preparation of Field-Based Practitioners for Urban Settings." These individuals are to be "...competent to assume or continue in leadership roles in metropolitan educational activities and institutions." Our Ed.D. program calls for a core of required courses, and for the performance of research. The nature of that research will vary from individual to individual and, though it is expected to be original, it differs from traditional scholarly research in that it will likely be applied to problems with which the student might be faced in an urban school system.

One problem that I see is that many of the participants in this doctoral program may experience little of the training which characterizes traditional doctoral programs, e.g., the frequent on-campus interactions with other disciplines. The participants in the Ed.D. program will be chiefly individuals from the local community who currently have full-time positions and who will find the time to enroll in courses and to devote some effort to research. We do have

a one-year full-time residency requirement, and technically this satisfies one of my concerns. It is noteworthy, however, that the Ed.D. program has a rigorous core which involves graduate courses and training from faculty members who are members of the graduate faculty. Thus I can depend on the adherence to the policies set down by our graduate council. The Ed.D. degree is therefore a program under the administrative guidance of the graduate school.

The faculty in our Ed.D. program are members of the university community and meet the standards and requirements developed by the academic community. But, in the case of the engineering programs, how do we face the problems of adjunct faculty and research advisors from the industrial community? How do we face the problem of engineering faculty who will teach in traditional master's and Ph.D. programs, but who will also be responsible for a different program of courses applicable only to a D.Eng.? The problems include division of faculty labor, development of new loyalties, and evaluation of extra-university personnel.

With reference to the students, I perceive that some of us will be faced with recruitment problems. This may not be hypothetical, since there are some universities that offer a choice of a Ph.D. or a professional doctorate in the same field. We have had a good deal of experience in medical schools where the Ph.D. and the M.D. are readily separated and recruitment often takes separate paths. Currently, it is very easy to recruit a student for a medical school or a dental school program, or for the Ph.D. in one of the basic sciences, e.g., physiology, biochemistry, microbiology, pharmacology, or anatomy. These are distinctly different programs. It is important to recognize, however, that in 95 per cent of the schools those Ph.D. students take their core programs with the first and/or second year medical school students. In many instances, they simply have a different cross listing in course numbers—one for the graduate school and one for the medical school. These programs are easily understood because there is a history and experience. But what about the emerging programs?

I can foresee the problem of maintaining and establishing qualifications and requirements for membership in a graduate faculty. The graduate faculty member who will be giving courses in an applied engineering program as well as in the traditional engineering program may be using the same core course for both types of students. This is perfectly legitimate. I have already noted the example of medical schools in which Ph.D. and M.D. candidates are mixed. In the developing professional program, if there is an increase in enrollment, will there be a division of loyalty in terms of where the faculty member should concentrate his/her efforts? In a traditional program the research efforts of faculty members are measured and weighed toward promotion and tenure. The major effort in the applied program, however, might be devoted to teaching, with only limited research effort applied to industry problems.

For the faculty—and for that matter the students—there may be some re-

strictions in terms of the publication rights as well as restrictions in terms of the quality of the material presented as research dissertations. Whereas it may be perfectly adequate for the industrial researcher to answer a specific question or respond to a specific problem, the work may be inadequate in terms of scholarship for publication. The research may result in a technical report rather than a publication in the open literature. Standards for technical reports will have to be addressed in developing evaluation criteria for faculty personnel actions. Presently, I note considerable differences of opinion among faculty on personnel committees as to the merits of research presented as technical reports.

There are many factors that impinge on our opinions and that will influence administrative decisions. Core programs of graduate courses that satisfy the needs of both traditional doctoral students and professional doctoral students may need to be developed. Criteria employed in the evaluation of faculty members for positions on the graduate faculty may need to be modified. The requirements of accrediting agencies and professional organizations may need to be addressed. Directives from state boards and councils for higher education, which recommend and or approve funding to support our graduate programs, may need to be accommodated. These councils do not necessarily separate traditional from non-traditional; they simply want to know whether a course is listed as graduate or non-graduate and the numbers of students enrolled. Funding is often based on the numbers of students enrolled in specific courses.

With all these considerations in mind, it appears to me that the Council of Graduate Schools should entertain the development of recommendations that graduate courses, i.e., professional graduate courses, traditional graduate courses, or graduate courses that fall in both categories should indeed be identified as the programmatic responsibilities of the graduate dean. One of my most serious concerns is the prospect that each unit dean, rather than the graduate school dean, will attempt to manage individual professional degree programs and subsequently compete with the traditional doctoral programs. I believe it is our function to keep these many overlapping programs working together by having several common denominators. There must be a recognized graduate faculty, whose qualifications are based on measurable standards; qualified students with an established standard of academic achievement; and a centralized graduate office for the administration of both the evolving doctorates and current Ph.D. programs.

The question is: How does the dean of the graduate school implement administration of professional graduate programs? In general, we provide the administrative vehicle whereby graduate courses are reviewed and approved for graduate credit. We examine the credentials of faculty members and evaluate their capacity to train graduate students. These functions are implemented in various ways. At the University of Louisville we have an elected Graduate Faculty Council, representing faculties from various schools and

units, that examines the course contents and approves various programs. The credentials of faculty members are examined by the council to determine whether their research and scholarly productivity merit membership in the graduate faculty. The Graduate School Office approves and recommends the granting of graduate degrees. These functions may be seen from various points of view. Sometimes graduate deans are looked upon as gatekeepers performing simple bureaucratic functions, but my point of view is that we provide quality control for the graduate programs at our universities.

As I mentioned earlier, I have come to accept the need for professional doctoral degrees. They meet a societal need. They are pressed upon us by populations of students and faculty who perceive that their needs as students or educators can be better served by such degree programs. Presumably an institution with sufficient resources, faculty, students, laboratories, etc. could develop entirely separate professional and traditional programs. I daresay, for most of us, this is unlikely. If for no reason other than economics, we must be prepared to cooperate in the development of professional doctoral programs; we cannot afford to compete for funding, for students, or for prestige.

The task will not be easy but I see a unique problem for graduate deans. The emergence of professional degree programs provides a vehicle for the expansion of our roles in the university community. Perhaps this is a protectionist point of view, but I believe there are good reasons for adopting the view that the graduate school should be the predominant administrative unit for all graduate programs.

We have the opportunity to stem the flood of less substantive programs and prevent further erosion of our recognized commitments to quality and tradition. We should not fear change and evolution—as long as the mutations are not lethal or aberrant. It is our obligation to maintain standards that are universally acceptable and credible, and I believe that this can be achieved with clearer and more defined mandates for the office of the graduate dean.

Plenary Session II

Thursday, December 2, 1982, 9:00 a.m.

CLOSING PANDORA'S BOX: THE RESEARCH LIBRARY IN THE YEAR 2000

Presiding: James B. Bartoo, *Pennsylvania State University*
Presenters: John B. McDonald, *Director of University Libraries, University of Connecticut*
Warren J. Haas, *President, Council on Library Resources*
Deanna B. Marcum, *Program Associate, Council on Library Resources*

John B. McDonald

It is a pleasure to be here. It's not often that a librarian can get anyone to listen to him, much less several hundred graduate deans. I know what you're thinking. Just because I'm talking doesn't mean you're listening. I understand that. We librarians have a well-deserved reputation for being unwilling or unable to talk about anything except libraries. We are notorious for having a library-centered view of the university, somewhat like the Bostonian's view of the United States. We may vaguely perceive the faculty and be dimly conscious of the students, but in our heart of hearts we believe with Thomas Carlyle that "the true university of these days is a collection of books." But there are reasons for this mindset which I shall come to in a minute. And let me not mislead you—true to form I'm going to talk about libraries and so are Mr. Haas and Ms. Marcum.

The idea for this program grew out of conversations that Jim Haas and Michael Pelczar had several weeks ago. The touchstone was Mr. Haas' article on libraries which appeared in the February 12 issue of *Science*. That article made several points that Mike Pelczar thought might be of interest to this group. Entitled "Computing in Documentation and Scholarly Research" the article was more broadly-based than the title suggests. It dealt with many aspects of the process of scholarly communication, including the role of the computer in publishing, in cataloging and indexing, in the provision of publications, and a number of over-riding policy issues which have yet to be approached, much less resolved. Rather then rework that same material for this occasion Jim suggested that a somewhat different approach be taken-and this morning's program is the result. The three of us will present a sort of triptych, one panel of which deals with the current status and likely future of the research library; that is, the sort of library found in large universities around the country. Jim

Addressing the plenary session on The Research Library is Warren J. Haas. Council on Library Resources. *Others* (from left) *are John B. McDonald.* University of Connecticut; *James B. Bartoo.* Pennsylvania State University, *presiding, and Deanna Marcum,* Council on Library Resources.

Haas will tell you what he means by the phrase "Closing Pandora's Box" and he will talk about the organization he heads, the Council on Library Resources, and how it is attempting to deal with the fundamental issues affecting research libraries today. As you may know the Council is an operating foundation, and though it is small I believe it is unique in being the only foundation in the world exclusively devoted to libraries. Deanna Marcum, who is a program officer at the Council on Library Resources, will describe work that the Council has been doing in cooperation with the Association of American Universities and about a conference to be held next week at Wingspread in Racine, Wisconsin, under the joint auspices of CLR, the AAU, and the American Council of Learned Societies. We trust that taken together the three panels of the triptych will convey a fair sense of the changing nature of the academic research library and some of the dynamics of its environment.

I said I would say more about why librarians are so single-mindedly devoted to libraries. The reason, I believe, is because libraries as a subject of serious discussion, investigation and research have been so thoroughly neglected by everyone except librarians. The program we are presenting today is a case in point. If it is not a first it is close to being so. I suspect that this group, the Council of Graduate Schools, has seldom devoted a plenary session at one of its meetings to libraries or a library-related topic. I do not intend this as a criticism because in the first place I don't know what it means, and in the second place it may say more about self-effacing and unassertive librarians than it does about graduate deans. But perhaps the uniqueness of this encounter is not unrelated to another phenomenon which I have observed over some thirty years of work in university libraries, namely that studies of graduate education in America have paid scant attention to the role of libraries in the educational process. If you doubt this, let me back up my statement with some empirical evidence.

For my own information and to attempt to verify my hypothesis, I asked our

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reference department to conduct a search of the ERIC data base to see how many sources could be found that gave substantial weight to both graduate education and to library resources. Using terms such as graduate study, doctoral programs, and professional education, some 3600 citations were found to be in the file. Using terms su[illegible]ibrar[illegible]ary materials, library servic[illegible], etc., 6274 citations were repo[illegible]be in the file. When the terms were put together and a combined search [illegible] made how many entries do you suppose turned out to deal significantly with the relationship between graduate education and libraries? Only eight! And some of these were highly specialized, such as one entitled "The Library—the Workshop: Roles Played by the Veterinary Medicine Library in Encouraging Scholarly Pursuit." The two most germane titles were authored by librarians and appeared in library periodicals. When we remember that the ERIC data base dates back to 1966 and contains over 200,000 entries it is surprising, to me at least, that the absence of dialogue has been both so profound and so prolonged.

Not wishing to trust my hypothesis solely to a machine search of citations I went to the stacks to look at the books themselves. In study after study neither the table of contents nor the index revealed any significant coverage of libraries. Even studies of recruitment and retention of graduate faculty fail to mention the often-alleged importance of the library as a factor in the decision reached by the candidate.

There is an interesting paradox here. It is widely recognized that distinguished graduate programs cannot exist in the absence of respectable library resources. Many groups have cited the relationship. The Council of Graduate Schools used to have, and perhaps still has, a leaflet on new Ph.D. programs which alluded to the number of volumes [illegible]hould have to support various sorts of graduate work. Starting [illegible]h the late Allan Cartter's *Assessment of Quality in Graduate Educ*[illegible]hich the strength and quality of the library are seen as important measures of the strength and quality of a program or an institution, and coming down to this very moment when the most recent ratings of graduate programs also use the library as a yardstick of quality, the library has occupied an important place in the process of evaluating graduate programs. While I know that the new ratings are highly controversial I have not heard anyone suggest that the library is no longer an index of quality. Perhaps then we can still accept Allan Cartter's statement that "The library is the heart of the university; no other single nonhuman factor is as closely related to the quality of graduate education."

And yet to a librarian that statement has an anachronistic ring. The emphasis is exclusively on resources. The word "nonhuman" suggests that the quality of the library staff and the services they provide are inconsequential. To the extent that such a view persists today I believe it must be changed. And I believe it is changing. Despite the evidence of the ERIC search (just possibly there's something wrong with machine searching); despite that evidence there are encouraging signs that the role and importance of libraries and librarians is com-

ing to be appreciated by influential groups. In 1976 fifteen university presidents underwritten by the Carnegie, Ford, Hewlett, Lilly, Mellon and Sloan Foundations, issued a report entitled *Research Universities in the National Interest*. That report devoted one of its five chapters to libraries, giving them equal weight with such topics as federal support, basic scientific research, priorities for graduate education in the 1980s, and international studies and research. Similarly the National Enquiry in Scholarly Communication in its 1979 report designated libraries as one of four major groups on which it centered its investigation. The four groups were—the scholars themselves, the publishers of scholarly books and journals, the learned societies, and the research libraries.

These reports try to make the point that libraries face a difficult and uncertain future, one that will almost certainly require a sharpening of purpose in line with all-too-obvious financial constraints and economic imperatives. Library users must help libraries make better use of what they have, guided one would hope by a more rational approach to academic planning than we have seen heretofore. If retrenchment must take place it must be done not simply to reduce the size of the academic program, but to produce some badly-needed flexibility.

As I have said it is encouraging to find libraries being given serious attention at last by high-level groups, including this one, but I must add quickly that the attitudes expressed in the reports I have cited have not yet penetrated very far into the ranks of working scholars and academic administrators. Programs continue to be developed and approved without regard to the adequacy of library holdings and without the means to achieve adequacy. Accreditation reports continue to overemphasize library strengths and to gloss over library weaknesses. Grant proposals continue to result in new and unanticipated demands on libraries while granting agencies steadfastly refuse to support library acquisitions. Individual scholars continue to insist on libraries maintaining locally-held collections at any cost, just as they resist resource-sharing arrangements which would reduce costs and make accessible a wider range of materials.

In short, there is a growing mismatch between the demands and expectations of library users and the ability of libraries to satisfy those demands and expectations. We librarians opened Pandora's box in the affluent 50's and 60's by trying to be all things to all people. As new programs proliferated we tried to support them just as we supported and continued to support older programs. As new journals were born we subscribed to them just as we sought to acquire the back files of older journals. Retrospective materials we did not have and could not find in the out-of-print market we bought in reprint editions or in microform. We did not protest when futurists and technologists predicted the wholesale conversion of the scholarly record to machine readable form and the creation of electronic delivery systems reaching into every faculty office and every classroom. We did not succeed in getting scholars to understand that

they were in danger of losing control of their literature and seeing that control shift from learned societies and universities to an information industry which views scholarly information as a product to be marketed, but only as long as it is profitable to do so.

I realize that these are rather sweeping statements and I know that you could point to many exceptions, but I believe the basic proposition is defensible. What is needed is a more honest and realistic approach to what the library can do and more discussion and agreement about what it should do. Librarians have many ideas about this, and despite the apparent absence of dialogue with the users of libraries we feel that considerable progress has been made in closing Pandora's box and in preparing libraries for the year 2000 and beyond. (Libraries have problems all right, but they are neither overwhelmed by them nor powerless in the face of them.)

What are some of the things libraries have done and are doing to cope with an austere present and an uncertain future? They have paid close attention to improving library management; they have moved strongly into automation and the use of appropriate technology; they have fashioned organizations and established affiliations that are serving them well now and show promise of helping to meet future requirements. The Association of Research Libraries, now 50 years old, has an impressive record of accomplishment. Its Office of Management Studies, for example, has assisted more than one hundred university libraries to make more effective use of their management personnel and resources. The Center for Research Libraries in Chicago is adding new space and initiating new programs which will make it a more serviceable institution for all of us. The Council on Library Resources, about which you will shortly hear more, has been a powerful force for constructive change in research libraries. OCLC and RLG, the On-Line Computer Library Center and the Research Libraries group are national organizations of libraries which, through collective action, are reshaping library activity to a network environment based upon the latest computer and telecommunications technology. NELINET, SOLINET and any number of other computer-based cooperatives are serving similar purposes at regional and local levels.

On the individual campus, libraries are working on several fronts to adapt to a leaner life-style. They are seeking a balance between local holdings and remotely-held resources, whether in storage libraries, other universities, or in cooperative facilities, such as the Center for Research Libraries. They are attempting to overcome the labor-intensive nature of libraries and to hold the line on costs by providing new kinds of facilities, including computers and sophisticated communications devices. They are seeking new sources of support for library operations and are exercising much firmer control over library expenditures. They are rethinking the use of library personnel, and are continuing to try to find better ways of assimilating librarians into the university community. At the same time they are trying to deal with certain overarching issues, namely the requirement to create a comprehensive and reliable national

bibliographic data base; to establish an assured source for scholarly serials and journals, and to initiate a national program for the preservation of our printed heritage.

While librarians are concentrating on what they believe are attainable goals, there are those who would have us believe that technology will solve all our problems. They perpetuate the myth that libraries are backward and unresponsive, slow to innovate and reluctant to seize opportunities to adapt to new developments. Librarians say a fair case can be made that in many respects libraries have led the way in employing technology for the benefit of users. They argue that the technologists have too little faith in the existing enterprise and too little appreciation of the costs of converting research libraries to some new form. While librarians acknowledge that hardware costs are coming down rapidly they feel that their critics are not dealing fairly with the costs of converting and using information on a scale comparable to the present use of large library collections. Many librarians believe that what is technologically feasible is sometimes not affordable, and what is both feasible and affordable is sometimes not educationally sound nor intellectually desirable. We feel strongly that new systems of scholarly communication will supplement rather than supplant printed books, scholarly journals, and research libraries.

Jim Haas selected the title for our presentation today and I am sure he has his own views about what "Closing Pandora's Box" means. I know he shares my view that the users of libraries must drive the evolution and development of libraries in the future. I do not mean to lecture this distinguished audience in its duty, but I would say to you that at a time when institutional support for libraries is eroding, when categorical aid from federal sources is in jeopardy, and when the information industry is promoting unproven alternatives to libraries, those who use libraries and who value them must speak out in their behalf. Unless they do so, perhaps even at the cost of something else they value highly, libraries are unlikely to be able to provide what scholars and their students will require in the future.

In his *Science* article our next speaker put the matter more positively, and by way of conclusion to my remarks I offer the following quotation from Mr. Haas. "Publishers, librarians, and scholars in all disciplines are reflecting on the prospect of merging new systems with the old. There is little support for the extreme position that established components of the scholarly system will be replaced by the new technology. There is ce[illegible] sources and skills required to transform the old and wisely too little and too late."

Warren J. Haas

I was a university librarian during the golden years, from the late 1950's well into the 1970's. For universities generally it was a period of rising budgets, globalization and extrapolation of traditional academic programs, rapidly ex-

panding research support, and growing enrollment at all levels. That setting fostered rapid library collection growth, new library buildings on almost every campus (most built with provision for future expansion) and rapidly growing library staffs (the number of graduate library schools increased from about 25 in the late '50's to more than 70 in about 15 years). The same period saw massive increases in publishing volume, especially journals, and costs rising far faster than inflationary-rates. It also saw the advent of computers and the first promises of computing and communications technology to the library world. In short, it was a stimulating and expansive era. But I wish I could live it over again, because there are some things I would try to do differently.

This is not to say that those were wasted years. Research universities and research libraries both accomplished much of lasting importance. But we made one fundamental mistake. We assumed continuing, and thus infinite, expansion in what is essentially a finite enterprise. By and large, the quantity of solid research that can be undertaken, the amount of instruction required, and even the number of books and journals that can actually be used are governed by demographic realities. Had we acknowledged the possibility of depression, we might have acquired some insurance. Universities might have established more useful links with each other, some of the then available funds might have been used to establish or strengthen regional and national support capabilities for libraries, concern for quality as much as for quantity might have influenced the expansion of professional education for library and information service, and the set of related activities that are now called scholarly communication would have been identified as a matter of primary concern of universities. Had we all looked ahead with more vision, we would be far better off today than we are.

The Council on Library Resources and the organizations, institutions and individuals with which it works are now trying to reclaim some lost opportunities. In a sense, we are seeking to construct the future on a foundation of hindsight. This is our attempt to close Pandora's Box, which, for libraries, seems to have been filled with some superficially valid but unrealistic expectations. For the record, CLR is an operating foundation established in 1956 by Ford, and now funded by a number of foundations. We have no endowment of our own. For foundations and libraries alike, we are an intermediary organization focused on selected issues important to academic and research libraries and their users. We work toward our objectives through staff activities and grants to others.

Now I will turn to my sampler of accomplishments and present activity. I will simply list a few tangible items of interest in several broad categories. The intent is not to overload you with facts, but to give you a true impression of the importance and magnitude of change that is underway.

1. Bibliographic systems and services
   - —15-20 million bibliographic records for books and serials are now in machine-readable form.

—The internal operations of many libraries have been transformed, and costs of processing much material have been substantially reduced.

—New small computers will make possible integrated record systems for individual libraries or groups of libraries.

—Work is underway to develop a standard network interconnection that will permit interactive linking of computer systems. This work will also make possible cooperative development and maintenance of files of records by a number of libraries in a standardized, non-redundant way. The first application will be the creation of a national name authority file service.

—A study of the several on-line catalogs now operational in the country has just been completed. The prospects are strong that on-line catalogs will replace files of catalog cards during the next five or so years. Scholars find the search characteristics of the best of the experimental models attractive. These new catalogs will make much more use of subject access capabilities and will provide more precision in identifying specific, needed items.

—Chinese, Japanese and Korean characters will soon be handled without transliteration in bibliographic files, and most major Oriental libraries, including the Library of Congress, will soon begin cooperative cataloging efforts.

2. National collections for research

There are encouraging signs that libraries are beginning to act as if they really believe that the myth of self-sufficiency is dead.

—Work is underway in a number of libraries to develop a standard method of describing content and strength of collections, the first step toward sharing collecting responsibility.

—RLG libraries have developed a computerized inventory of comprehensive collections, and are now individually assuming responsibility for specific subject fields.

—The idea of a national periodicals [illegible] because is logical. There are signs serious discussions will soon begin again to attempt to resolve problems that have arisen between publishers and librarians.

—The Center for Research Libraries has moved into a new building, and is now drawing up long-range plans for the future.

—The topic of preservation of deteriorating collections is far from resolved, but there are several signs of progress:

- L.C. has contracted for tests to establish performance and cost information for conversion of printed text to optical disc format, for both color and black and white.
- L.C. is now assessing results of a test to deacidify books, using diethyl zinc. 5000 volumes have been processed at one time in a NASA test chamber.

- In the next week or so, the report of the Committee on Book Longevity will be published and distributed to paper producers, book manufacturers and publishers. The report sets reasonable standards for paper quality and book manufacturing procedures.

3. Access systems

Bibliographic success and a growing commitment to cooperative collecting have created a new frontier: improving the means of access to library materials and to items of information.

—The major computerized bibliographic utilities have installed message systems to expedite and make more reliable the interlibrary loan process.

—The Ford Foundation has just provided CLR with funds for a new program to seek ways to reduce legal, organizational, and technical constraints on access to materials and to information.

—Several experiments are in the planning or funding stage to test methods of converting text to digital form for purposes of transmission and ultimate reconversion.

4. Library management

—During the last decade, a good many libraries have undertaken self-studies of internal operations, of preservation needs, collecting policies and practices.

—CLR plans to support and guide a major series of studies relative to the cost and funding of research libraries. A CLR board committee recently noted that the most difficult problem currently facing libraries stems from the changed setting in which they will soon be operating. [illegible] erse information services are being developed, many of [illegible] a commercial basis. How libraries will operate in the complex economic setting implied by the commercialization of information is an unresolved question.

5. Professional education

Present and predicted changes for research libraries imply changes in the library profession itself. CLR has recently begun a major program, including projects noted below, to improve understanding of the research library role in teaching and research and to stimulate change in education and training for research librarianship.

—The Library School at Michigan has established a program specifically for research librarianship, and is making a special effort to recruit students with active subject interests and strong quantitative skills.

—The University of Chicago Graduate Library School, in cooperation with the Graduate School of Management, has established a program to strengthen management skills of individual librarians in a year-long certificate program.

—The [illegible]ool of Library and Information Science has established an intensive advanced management program for individuals holding major library administrative posts.

The fundamental question of library responsibilities in a university setting needs new and imaginative attention. For economic and intellectual reasons, it seems essential that the research library of the future be an active component in the processes of teaching and research. The extension of role implies changes in library staff composition and capabilities. A larger portion of library professional staff will need to maintain an active interest in major subject fields, and new approaches to professional education will be required to accommodate the needs and interests of subject, technical, and management specialists that together are the core of future research library staffs.

In summary, this is an active and important era in research library development. The matters at the heart of all of this activity are central to the interests of graduate faculties, and it is imperative that those faculties participate fully in the processes of planning and establishing the research libraries of the future.

Deanna B. Marcum

Next week at Wingspread, the home of the Johnson Foundation, 40 university administrators, scholars, librarians, and foundation officers who were selected by the American Council of Learned Societies, the Association of American Universities, and the Association of Research Libraries will spend 2½ days discussing the future of research libraries and their users. The impetus for this conference came nearly two years ago from a small group of representatives from these same sectors, all convinced that the time had come for a new initiative in the research library world if the needs of scholars for library resources and information services are to be met in intellectually sound and financially realistic ways. They realized that research libraries are changing fundamentally, and it is no longer possible to set policies simply by extrapolating from past practices.

Task forces were appointed to review issues and needs in five key areas: bibliographic systems, resource sharing, preservation, technology, and the profession of librarianship. The task force reports, along with subsequent discussions with the advisory committee, will provide the base, though not the limits, for the Wingspread conference.

Pat Battin, director of Columbia University Libraries and the Interim President of the Research Libraries Group, will lead the discussion of bibliographic systems, filling in for Hanna Gray who chaired the task force; she will consider briefly the present and projected bibliographic structure and assess its adequacy in intellectual, economic, and operational terms. The participants will be asked to contribute their views on what is needed, from each of the perspectives represented, in a bibliographic system. What are the requirements for providing unimpeded access to bibliographic information? What are the frustrations? And how might they be eased?

The next topic will be resource sharing. Oscar Handlin, director of the Harvard Library and chairman of the resource sharing task force, will review the

efforts to date to share library resources and suggest some of the reasons for less than complete success. He will move beyond current activities to explore some of the new prospects for resource sharing made possible by technology and a widely available bibliographic system. What are the immediate and future possibilities for libraries building comprehensive subject collections with specific libraries assuming responsibility for certain subject areas? What are the prospects for centralized national collections, to which all libraries and scholars have equal access? Participants will share their views on what would be most helpful to them, and consider the economic and technological implications of the various options.

In the afternoon, David Stam, the director of the Research Library of the New York Public and the chairman of the preservation task force, will continue the discussion of resources, focusing specifically on the preservation problems faced by virtually all research libraries. What are the nation-wide efforts most likely to help alleviate the problem of deteriorating collections? Is it feasible to combine collection responsibility with a commitment to preserve materials in the same subject area? What are the institutional responsibilities for preservation of previously acquired materials during a period of constraint on new acquisitions? And how can the bibliographic system be used in creating a national preservation plan?

The final afternoon session will be devoted to technology, with discussion led by Dick Cyert, the task force chairman and the President of Carnegie-Mellon. He will begin by looking at the reasonable expectations for technology as it pertains to all of the other topics under consideration. Rather than painting an extreme futuristic picture, he will describe the greatest potential benefits for applying technology to library problems. We hope that the group will begin to think about the realistic and economically viable applications of technology for the foregoing problems associated with scholarship and research libraries.

After the group has been exposed to this series of issues, all needing concentrated and thoughtful attention, participants will have time to ask questions and to reflect on the earlier topical discussions; we will then attempt to establish an agenda for action and to consider how we can best maintain a continuity of attention and effort to the problems we have discussed.

It is impossible, of course, to predict the outcome of this conference. We are assembling some of the strongest talent available to tackle these issues, and we trust the process to produce results. Yet, I think it is safe to identify those themes that occurred repeatedly in the task forces' discussions and reports and to speculate about some possible approaches and projects that might result.

I will identify the four major objectives that have been proposed thus far and offer illustrations of some possible actions.

1. Library resources for research

   Objective: In the context of present and long-range national requirements, to assure the availability of comprehensive, well or-

ganized and properly maintained collections of published materials needed for research and scholarship.

To meet this objective, there are several things that might be done, in addition to the many examples of progress we can already point to:

1) Establish or expand, on behalf of the country, collections of materials in carefully chosen categories (e.g., periodicals) that are important to scholarship and are likely to be used, over time, by a substantial, if unpredictable, set of users.
2) Encourage application of evolving systems for assessing collection strength by subject, and for promoting shared responsibility for building and maintaining comprehensive subject collections. The Research Libraries Group has made an excellent beginning for its own members and the Association of Research Libraries is in the process of trying to find ways to use the same methodology for a wider set of libraries. These efforts should be encouraged and expanded.
3) Undertake a thorough economic study of the implications of resource sharing. If we are talking about redeploying institutional funds to build and preserve collections in the national interest, we must find ways of describing the economic impact on individual institutions.
4) Establish an office to monitor the performance of resource development activities that are of national importance. This could be a responsibility taken on by an existing organization, or a new program might be needed.

II. Collection preservation

Objective: To assure the preservation of printed and archival materials important to scholarship and research.

Preservation is a topic that has already received substantial attention in the largest and oldest research libraries. A number of individual institutions have taken steps to save at least portions of their collections from ruin, but without a national plan there is no assurance that the research materials needed by scholars nationwide will be preserved.

Some possible approaches and activities building on efforts already underway include:

1) Establish a national plan of action for addressing the retrospective preservation problem including priorities, methods, and funding.
2) Improve understanding of the problem of preservation among a wider audience to help secure funding for retrospective programs, nationally and internationally.

The economic implications of preservation programs are massive, and there must be consensus on preservation as a priority, before funding is sought.

3) Encourage major libraries to include substantial preservation efforts in ongoing operations, especially to assure preservation of unique or distinctive items.

This will be a natural outgrowth of the efforts now in progress to identify collection strengths in individual libraries.

4) Promote research, on behalf of all libraries, to perfect preservation techniques and to test and apply new technological methods to preservation goals.

Much work is yet to be done in testing paper and production methods. It would be very useful if such research projects were conducted in universities.

5) Encourage cooperation between library and scholarly organizations to establish preservation priorities within subject areas.

This is an obvious area for cooperation between scholars and librarians. Librarians are interested in preserving the materials needed for scholarship; scholars can help identify the materials to receive priority treatment.

6) Expand production facilities to capture text of deteriorating books in cost effective ways that will assure permanence of the copied text and ready access to the materials.

7) Consolidate and make comprehensive the bibliographic services that identify and locate master copies of texts.

III Bibliographic services

Objective: To improve bibliographic services for library users.

The Council's Bibliographic Service Development Program is in its fourth year and the progress has been remarkable. There is now the distinct prospect that library users and scholars will have access, regardless of location, to all bibliographic information in machine-readable form. There have been numerous cooperative development efforts among the several data base producers due to BSDP efforts; yet, there is more work to be done if the overall objective is to be realized. For example:

1) Determine with more precision the requirements of users for subject access to bibliographic data bases.

In a recent study of online public access catalogs, researchers discovered that the need for subject access is far greater than we had realized with traditional card catalogs.

2) Expand and enrich the CONSER data base for serials.

The bibliographic information about serial publications should not be limited to a single data base.

3) Continue current efforts to add and make nationally accessible bibliographic data bases.

4) Explore the relationship between expanded bibliographic capabilities and demand for library materials and information services.

In other words, we need to determine what other capabilities can be realized through the existing bibliographic system.

5) Promote better coordination among bibliographic enterprises on behalf of users.

Competition between bibliographic utilities may prevent the best possible service to library users.

IV. Technology and scholarly communication

Objective: To make effective, economical use of computer, communications and text storage technologies in providing access to information for scholars and researchers.

Technology, as you know, is an important tool for libraries. Yet, there are far too many instances of technology being viewed as an end, not a means. There are too many examples of institutions designing their own systems, and sometimes producing redundant results with high price tags. Some possible large scale cooperative efforts in the technology area that could benefit all libraries might include:

1) Establish an experimental technology-based document delivery system to assess performance and user characteristics.
2) Explore technology applications in publishing in the context of library functions and user requirements.
3) Extend current assessments of videodisc technology for text storage, with the end of assessing services and cost implications for research libraries.

The Library of Congress is conducting an experiment whereby the contents of popular journals will be stored on videodisc and users will have access by calling up journal articles on a terminal. The costs and the reactions of users will be important findings for other research libraries, as well.

4) Study the relationships between the format of information and its utility for major subject categories, sets of users, and kinds of use.

We hear much speculation about what kinds of materials might be most valuable in machine-readable form, but what do users think? How will scholars of the various disciplines respond to alternative formats?

CONCLUSION

I'm sure you will agree that this represents a full agenda for Wingspread. I should emphasize that Wingspread is a *beginning*. The cooperation and collaborative work of scholars, administrators, and librarians must be strengthened and expanded. Our presence here is another example of trying to open the communication channels. We ask now that you let us know which of these activities — or what other activities — are most important to you. If there is insufficient time to comment this morning, I hope you will call us at Council on Library Resources in Washington so that we can incorporate your ideas.

Business Meeting

Presiding: W. Dexter Whitehead, *Chairman, CGS Board of Directors and Dean of the Graduate School of Arts and Sciences, University of Virginia.*
President's Report Michael J. Pelczar, Jr., *President, The Council of Graduate Schools in the U.S.*
Committee and Task Force Reports
Resolutions
Financial Report
President's Report

CGS President Michael J. Pelczar, Jr.

Michael J. Pelczar, Jr.

It is a pleasure to have the opportunity to share with you some of the activities of the Council during 1982 and to suggest certain issues that may concern us in 1983. Let me first comment briefly on several developments that occupied our attention in 1982.

Support for Graduate Education. Federal support for graduate education remains in a holding pattern of fragile stability. Support for research has increased slightly overall with large increases in defense-related programs, small increases in the health sciences, NSF, and reductions at NASA, Commerce, HUD, Energy, and Education.

Support for financial aid programs has stabilized, following the precipitous decline of the last fifteen years. In that period the nation moved from generous support of research and graduate education, expressed by fifty thousand federal graduate fellowships to today's austerity – a total of five thousand five hundred federal fellowships and traineeships. This decline has been accom-

panied by a shift toward borrowing by graduate students. Graduate students account for one Guaranteed Student Loan dollar in three. Annual graduate and professional student GSL loan volume totals an estimated $2.2 billion dollars. Thus, the administration's proposal to eliminate these students from the GSL program was no small threat. Thanks to an overwhelming response from students, parents, and institutions, this proposed action was defeated.

The financial indebtedness that many graduate students incur is becoming disturbingly high. Repayment schedules, sometimes at the rate of several hundred dollars a month, can stretch over a decade or more. New research and policy studies are underway to document this shift to widespread loan financing of graduate and professional study and its personal, social, and educational consequences. These studies are expected to demonstrate the need for a revival of federal fellowship and research support directly connected to graduate education. Detailed proposals for such support should be forthcoming in early 1983. These proposals should influence public policy debate and federal budget making.

Graduate education, like other sectors of society, continues to be in for very tough financial sledding. The federal deficit, like a malignant tumor, continues to grow; we are heading toward the $200 billion dollar debt level. Unless the nation's economy begins to expand drastically—upward of 3% real GNP growth per year—federal policy must move in one of three directions: cut defense spending, cut domestic spending, especially education and entitlement programs, or raise personal and corporate taxes.

There are no easy answers, there are no quick solutions. Within this macroeconomic context, graduate education will have to continue to mobilize students, parents, trustees, and institutions to convey the importance of investment in education. New friends and allies from business, industry, and government will have to be developed to maintain and support activities that we in graduate education believe are necessary. Fortunately, American belief in the importance of learning has not diminished, even in these uncertain times. It remains an article of faith among most of our people that the more learning one can get, the greater his or her contribution to our society can be. Perhaps the most crucial task facing us is to show that the graduate school is the root and branch of our educational system and that its continued vitality is essential to all the learning and teaching that goes on in our society.

The National Commission on Student Financial Assistance. This body, created by the 1980 Higher Education Act Amendments, became operational in 1981. The commission comprises twelve members, the President, the Senate, and the House of Representatives each appointed four. The chairman is Mr. David Jones, Vice Chancellor for Development at Vanderbilt University's Graduate education and the importance to it of student financial aid will figure prominently in the commission's report, which is expected in mid 1983. A subcommittee on graduate education is made up of John Brademas, President of New York University (former Congressman from Illinois), Chairman;

Senator Claiborne Pell of Rhode Island; and Marilyn D. Liddicoat, a California attorney. We have had several meetings with the staff of this subcommittee and the opportunity to provide information and to comment on its preliminary documents. We will continue to maintain close liaison with the commission. The commission's findings will likely provide the data base for the next reauthorization of the Higher Education Amendments, a process scheduled to begin in 1984.

The Status of Precollege Science and Mathematics. The sorry state of affairs in precollege science and mathematics has been documented by reports from several groups. They include:

- National Science Foundation and Department of Education *Science and Engineering Education for the 1980's and Beyond.*
- National Science Foundation *Science and Engineering Education: Data and Information 1982. A Report to the National Science Board Commission on Precollege Education in Mathematics, Science and Technology.*
- The National Academy of Sciences' *Convocation on Precollege Education in Mathematics and Science*
- American Association for the Advancement of Science *Education in the Sciences: A Developing Crisis*

One of the latest of these reports that of the National Science Board Commission was published in October 1982. Entitled "Today's Problems, Tomorrow's Crisis" it begins

> Across the United States there is escalating awareness that our educational systems are facing inordinate difficulties in trying to meet the needs of the nation in our changing and increasingly technological society. We appear to be raising a generation of Americans, many of whom lack the understanding and the skills necessary to participate fully in the technological world in which they live and work. Improved preparation of all citizens in the fields of mathematics, science, and technology is essential to the development and maintenance of our nation's economic strength, military security, commitment to the democratic ideal of an informed and participating citizenry, and leadership in mathematics, science, and technology."

Encouraging such "improved preparation" of our citizens is the purpose of the commission; its agenda is directed toward identification of the financial and human resources necessary to accomplish this.

You will recall that at our meeting last year we had a panel discussion on the question "Is graduate education fulfilling its responsibility to elementary and secondary education?" The panelists' answer to this question was "No!" The graduate community, which prepares teachers and teachers of teachers, must be concerned with the entire spectrum of education, the pipeline from kindergarten through post doctoral study as well as "life long learning."

An Assessment of Research Doctorate Programs in the U.S. The Confer

ence Board* survey, "An Assessment of Research Doctorate Programs in the United States," was completed in 1982. The report is being published as five separate documents, each one covering a broad program field: (1) mathematical and physical sciences; (2) humanities; (3) engineering; (4) biological sciences; (5) social and behavioral sciences.

Sixteen measures or program characteristics were utilized in characterizing individual research-doctorate programs. These sixteen measures were divided into the following categories: program size; characteristics of graduates; reputational survey results; university library size; research support; and publication records.

Among the distinctive features of the Conference Board study is its emphasis upon multidimensional characteristics of quality. Only programs that award research doctorates have been surveyed; other purposes of doctoral training are acknowledged to be important but they are outside the scope of this particular investigation. The multidimensional approach explicitly recognizes the limitations of studies that make assessments solely in terms of perceived quality among peers — the so-called "reputational ratings." Program information was received from two hundred twenty eight universities and the data were reviewed by approximately five thousand evaluators.

The CGS GREB Self Assessment Service for the Master's Degree. The availability of the CGS GREB instrument for the self assessment of programs at the master's degree level was announced this fall. The self assessment of academic programs developed by CGS GREB contributes to the process of "self regulation." The American Council on Education maintains an office on Self-Regulation Activities of Colleges and Universities. ACE and CGS continue to stress the significance of self-assessment and self-regulating processes initiated and implemented by colleges and universities.

A New Carnegie Commission report entitled *The Control of the Campus: A Report on the Governance of Higher Education* calls upon higher education to reaffirm and strengthen self-regulation. This report notes:

> "In recent years demands for accountability by agencies beyond the campus have caused confusion about where the authority is lodged and have worn down the traditional governance structure of higher education. . . . If the correct balance between integrity and accountability is to be maintained, the academy must assume more responsibility for regulating itself."

Included [illegible] protecting [illegible] accountability to

*The Conference Board includes representatives from the American Council of Learned Societies, American Council on Education, National Research Council, and Social Sciences Research Council.

accomplish these twin goals, the commission calls for strengthening boards of trustees and campus autonomy; the improvement of regional and specialized accreditation; the establishment of new linkages between higher education and state and federal governments; and greater protection for individual rights on campus.

CGS-GREB Conference Workshop on New Graduate Programs. Last fall's (October 1982) joint undertaking by CGS and GREB, a *Conference Workshop on New Graduate Programs*, was a success. Approximately one hundred persons were present, a standing-room-only attendance. The event was held in conjunction with the 65th annual meeting of the American Council on Education, which provided an opportunity for graduate deans to exchange views with other university administrators. The CGS Board also had the pleasure of a joint reception with the ACE Board of Directors.

The major topics of the Conference Workshop included:

- incentives and impediments for program innovation
- the underlying concepts for program innovation in major subject fields
- university industry cooperative graduate education programs

We are in the process of preparing for publication the proceedings of this Conference Workshop, and copies will be distributed to all attendees and CGS members.

The CGS Board has expressed an interest in developing a special topic one day conference with ACE at the latter's 1983 annual meeting in Toronto, Canada, October 12 14, 1983.

Graduate Education Forums. This is a new activity and it is illustrative of the creative partnership between CGS and GREB. In the fall of 1983, we will conduct two one-day Graduate Education Forums, one in Philadelphia and one in San Francisco. The purpose of the CGS GREB Forums is to provide potential graduate students with information about the choice of a graduate school, the admissions process, financial opportunities, program requirements, and GRE tests and services. Students will also have an opportunity to visit personally with institutional representatives and to inquire about their programs.

Enrollment Surveys. Rightly or wrongly, the public and the news media have an obsession with enrollment figures. More often than not the only stories from our meetings that are picked up by the press relate to enrollment data. Given all the important matters on our agenda, the emphasis on this one topic is unfortunate and misleading.

CGS's annual survey of enrollment data is conducted in collaboration with GREB. This year we preceded the written survey with telephone calls to a selected sample of institutions. (These were chosen on the basis of public or private character, degree offerings, size, and geographic distribution.) This "early bird" survey revealed that enrollment was down only six-tenths of one per cent.

The comprehensive annual survey—the twelfth in a series—was sent to all CGS member schools in the fall of 1982 and we are grateful to the 71% of those who responded. The findings are far from discouraging. Here are the highlights:

- Total enrollments were down 1% from 1981-82;
- First-time enrollments dropped 4%;
- The number of applicants was unchanged;
- The number of assistantships increased 1%; the number of fellowships was unchanged;
- Teaching assistant stipends increased in a number of fields: in economics, they were up 6.2%, in English up 6.5%, in chemistry up 7.4%;
- One percent fewer master's degrees were awarded in 1981-82 than in the previous year; the number of doctoral degrees was unchanged.

Copies of the survey findings will be mailed to all CGS deans.

SOME ISSUES FOR 1983

Financial Assistance for Students Members of the 98th Congress are not likely to forget the outpouring of protests over student aid cuts during 1982. Nevertheless, we cannot afford to relax our efforts to protect and improve student aid programs.

On November 10, 1982 an invitational conference took place in Washington, D.C. on the subject "Should There Be a National Panel of Graduate and Professional Student Aid Issues?" The conference was chaired by Dr. Roger Heyns, President of the Hewlett Foundation (formerly President of ACE). There were representatives from several of the Washington higher education associations, major foundations and the professional associations representing law, medicine, and engineering. Thomas Linney and I participated in this Conference.

As might be anticipated, the Conference began by raising questions about the need for another panel, who might be infringing on whose turf, what data are presently available and what voids exist, and what policy issues need to be addressed. After a morning and afternoon of talk, Chairman Heyn appointed Francis Keppel, Chairman of the National Student Aid Coalition, to head a steering committee that would plan activities for the proposed panel. Its eventual findings, recommendations, and proposals will likely supplement those in the forthcoming report of the National Commission on Student Financial Assistance.

Developing Partnerships A second major area of concern for us in 1983 relates to our various partnerships, including those with state governments, the federal government, business, and industry. We need to work steadily to improve our rapport with each of these groups. We need to articulate more ef-

fectively the centrality of graduate education to the material and social well-being of our nation and its people.

Leadership in Academic Program Development. The ways that graduate education relates to society and the ways that relationship is perceived by society are changing. We must become proactive in that change, influencing its force and giving it direction. We cannot do this simply by playing on such words as "quality," "excellence," and "productivity."

One theme that courses through much of contemporary writing about higher education is its social responsibility. It seems clear that as graduate education designs a future for itself it must take more into account of the world beyond the campus. Left free to make its autonomous choices about how learning and teaching will go on, graduate schools must consider how these precious and privileged activities affect the nation and the world. In a recent Phi Beta Kappa address, Robert Marshak, physicist, university president, and distinguished professor, put the issue as follows:

> "The impact of science and technology on society is so great that unless American universities are willing to accept much greater responsibility for applied multidisciplinary research on the large societal problems, more and more of our social decision making will be based on the self-serving needs of government, the blandishments of special interest groups, and the pervasive emotionalism of the mass media. The present day American university can be the most effective instrument of social decision-making because there discourse is relatively free of political pressures and ideological expediency, and research and scholarship can be pursued without being constantly subjected to changing moods of external publics."

The rebuilding of our economy is the principal goal of American domestic policy for the balance of this century. In the current debates over how to generate economic growth, one of the most important issues is the need for "improving the quality of the performance of the American work force." To be sure, increased capital investment is needed to engage in the many new fields of high technology. But it is equally important—in fact, it is crucial—that there be adequate investment to improve America's human capital in all fields and at all levels. Not only do we have a growing need for scientists, engineers, and technical talent for such areas as the new information industry, robotics, materials science, and recombinant DNA, but, we also have an equal need for humanists, social scientists, and others who can define the public issues that these new technologies raise. We need highly educated people who can help make our governments more humane. We need artists, encouraged in the academy, who can write the poetry and compose the music, and paint the paintings that show us the deepest human truths. Education of *more* of our citizens to the *highest* level they can attain is the *best* investment our nation can make.

Incoming Board Chairman Wimberly C. Royster, University of Kentucky, *accepts gavel from W. Dexter Whitehead,* University of Virginia, retiring Chairman.

COMMITTEE AND TASK FORCE REPORTS

ADVISORY COMMITTEE ON GUSTAVE O. ARLT AWARD

James Ballowe, *Chairman, Bradley University*
Victoria A. Fromkin, *University of California, Los Angeles*
Rose-Marie Oster, *University of Maryland College Park*
Herwig Zauchenberger, *University of Missouri, Kansas City*

The search for a recipient in the linguistics category for the Gustave O. Arlt Award in the Humanities has failed to produce a qualified and distinguished candidate. The three expert linguists who spent considerable time and effort in search of an appropriate candidate concluded there is none that qualified under the condition of the award. They were aware of the quality of work of the last recipient in the field of linguistics, were well aware of the conditions prescribed for the award, and, after several months of consideration, unanimously agreed that they could not make a recommendation for the year 1982.

ADVISORY COMMITTEE ON CGS/UMI AWARD

Robert F. Kruh, *Chairman, Kansas State University*
Arthur K. Smith, *State University of New York at Binghamton*
Henry Solomon, *George Washington University*

After reviewing 29 dissertations submitted in the 1982 competition for the Council of Graduate Schools/University Microfilms International Award, the

committee unanimously agreed on a recipient who will be presented with the award at luncheon on Thursday, December 2, at the annual meeting in Colorado Springs.

DISSERTATION AND COPYRIGHT COMMITTEE

J. Knox Jones, *Chairman, Texas Tech University*
Michael L. Mark, *Towson State University*
George S. Mumford, *Tufts University*

The Dissertation and Copyright Committee, rather than pursuing specific goals, serves in a "watch-dog" role for CGS, and as a source of information on current copyright law and related matters for member institutions. Queries from CGS members concerning dissertation/copyright matters always are in order. Additionally, in the past year, the Committee has provided needed information on several occasions concerning proposed institutional copyright/patent policies.

COMMITTEE ON GOVERNMENTAL AND ASSOCIATION RELATIONS

Daniel J. Zaffarano, *Chairman, Iowa State University*
Robert M. Bock, *University of Wisconsin-Madison*
Samuel F. Conti, *University of Massachusetts at Amherst*
Robert E. Gordon, *University of Notre Dame*
Robert M. Johnson, *Florida State University*
L. Evans Roth, *University of Tennessee at Knoxville*
Linda S. Wilson, *University of Illinois at Urbana*

The committee met briefly during the 21st annual meeting and agreed to try scheduling joint meetings with the regional graduate school associations. Tentative meetings were attempted with CSGS and MAGS but were cancelled for lack of a quorum in attendance. The committee met by conference call on May 21, 1982 and will meet again at the 22nd annual meeting.

The committee carried out one project planned last year. In February a Government Relations Inventory was distributed to all member schools asking for basic information on federal relations efforts ongoing at member schools. One hundred replies were received. Specific questions for 1982 also resulted in case by case examples of the institutional impact of proposed budget reductions. These case examples were used in subsequent testimony by Dean Clarence Ver Steeg representing CGS in hearings on student aid budget cuts. It is anticipated this information will be updated on a periodic basis. All members are urged to build up this government relations network information pool. Dean Dan Zaffarano, Chair of the committee, was also appointed to be the CGS representative on the Department of Defense University

Forum, a group organized by AAU and the Defense Department to study several areas of joint policy interest. Dean Zaffarano was asked to be a member of the working group on Engineering and Science Education. At a briefing on October 8, 1982, this group was informed of new initiatives DOD has developed to update university equipment, attract talented students into graduate studies in certain fields and to strengthen university-based research. The DOD is currently the largest employer of technical personnel in the country, with 71 sponsored laboratories and over 30,000 employees. There are current unfilled technical vacancies that DOD expects to eliminate by 1986 through its new program of DOD University Fellowships and the expanded ROTC Program for undergraduate students unable, or unwilling, to finance their educations through grants or loans. DOD Graduate Fellowships which will be phased in between 1982 and 1986 will provide $12,000 stipends to students and up to $8,000 cost of instruction grants to institutions.

The DOD laboratories are now concerned with attracting the top students at all levels. Laboratory directors have offered summer employment for top graduate students with their major professors, opportunities for further graduate study while employed, and other inducements.

The determination of the DOD to recruit top students is laudable in terms of national defense, but coupled with the aggressive recruiting practices of industry may exacerbate the problems of universities struggling to attract American students for doctoral study in the hope of eventually filling vacant faculty slots in shortage fields such as computer science and engineering.

In addition, the committee has also continued to monitor developments in the following areas:

- federal role in graduate education
- indirect costs: proposed 10% cut at NIH
- export controls
- instrumentation initiatives

COMMITTEE ON GRADUATE STUDENTS

Raymond B. Anderson, *Chairman, Columbia University*
Carolyn I. Ellner, *Claremont Graduate School*
George W. Kunze, *Texas A&M University*
Ellen Micklewicz, *Emory University*
[illegible] B. Samon, *University of Maryland College [illegible]*
Rudolph W. Schulz, *The University of Iowa*
[illegible] F. van Aller, *University of Southern Mississippi*

The committee held one meeting via conference call on May 21, [illegible] It usually meets in conjunction with the 22nd Annual Meeting. Committee members have been active individually throughout the year. In February CGS participated in the GAPSFAS National Forum where financial aid officials were briefed on implications on proposed reductions in financial aid programs.

In March Dean Clarence Ver Steeg of Northwestern University testified before the House Subcommittee on Postsecondary Education representing CGS and AGS. At the committee's request, he presented details on the implications for graduate education of the proposed FY 1983 budget.

In May a conference call meeting discussed the following issues:

- National Commission on Student Financial Assistance
- The AAU AGS Policy Paper on the Federal Role in Graduate Education
- The CGS statement on Support for Graduate Education
- CGS new appointment to a seat on the National Student Aid Coalition
- Monitoring of legislative developments with respect to student aid programs helping to support graduate students.

In July the committee was informed that proposed drastic reductions in student aid programs had been forestalled by Congressional action. This was due in part to the hard work exerted by students, faculty, and deans at all CGS institutions to let Congress know of the impact proposed cuts would have on campuses throughout the country.

In October the committee received for review the first of what are anticipated as a series of papers from the National Commission on Student Financial Assistance. A general review of research concerning graduate financial aid issues will be presented in a plenary session at the 22nd annual meeting.

Further monitoring of Commission papers and response via public hearings to the commissioned research of the National Commission is anticipated as a major duty of this committee in 1983.

COMMITTEE ON INTERNATIONAL GRADUATE EDUCATION

Alison P. Casarett, *Chairman, Cornell University*
Karlene N. Dickey, *Stanford University*
Stirling L. Huntley, *California Institute of Technology*
Jules B. LaPidus, *The Ohio State University*
William S. Livingston, *University of Texas at Austin*
Volker Weiss, *Syracuse University*

The Committee was assigned the job of preparing a statement on the desirability of having foreign graduate students study in the United States. While in the process of preparing the initial material for this statement, however, the excellent booklet, "Foreign Students and Institutional Policies" was published by the American Council on Education. While that report did not specifically address the issue on benefits from foreign students, it did cover sufficient of the background to make our report appear to be unnecessary. Accordingly, our Committee has spent the year in relative inactivity. We have received numerous reports relative to foreign students from Mike Pelczar and plan to meet at the CGS meeting in Colorado Springs to use these as a basis for identifying a task for the upcoming y

COMMITTEE ON MEMBERSHIP

Eugene B. Piedmont, *Chairman, University of Massachusetts*
Byron L. Groesbeck, *University of Michigan*
Michael Malone, *Montana State University*

Dean Benjamin F. Hudson resigned as Chairman of the committee upon election to the Board of Directors. Dean Eugene B. Piedmont took over the chair, with Dean Groesbeck continuing as a member and Dean Malone joining as a new appointee.

Twelve applications for membership were received over the past year. Of the nine thus far evaluated, the following seven were recommended to the Executive Committee:

Iona College (New Rochelle, New York)
College of Notre Dame (Belmont, California)
University of Alaska (Fairbanks, Alaska)
New York Institute of Technology (Old Westbury, New York)
University of Southern Maine (Portland, Maine)
University of Texas at Tyler
Central State University at Edmond (Oklahoma)

The remaining three are still under review and one of the two refusals has been returned to the Committee with additional material for further study.

The Committee continued considering new membership categories and worked through several drafts of Bylaw changes that would be required. Two conference calls served in place of meetings. Dr. Pelczar's support, plus Executive Committee comments, helped produce a final draft of proposed Bylaw changes which went to that committee in October.

The Membership Committee anticipates an increased volume of applications next year, both from units within systems and newly developing programs in non-traditional organizational settings. These will be reviewed applying existing CGS criteria and standards. The Committee also anticipates concluding the issue of new membership categories, as the Council directs.

COMMITTEE ON MINORITY GRADUATE EDUCATION

Anne S. Pruitt, *Chairman, The Ohio State University*
Clara I. Adams, *Morgan State University*
Mary Ann Carroll, *Indiana State University*
Johnetta G. Davis, *Howard University*
Norman N. Durham, *Oklahoma State University*
Jaime Rodriguez, *University of California, Irvine*

The following activities have been carried out since the 1981 Annual Meeting in Washington:

1. A concurrent session titled "What Appears on the Horizon for Graduate

Education of Minorities?" has been scheduled for the 1982 Annual Meeting. It will focus on the preparation of black professionals, barriers to graduate education of minorities, opportunities for strengthening graduate programs at historically black colleges and universities, and admission of Hispanics who have taken the GRE.

2. A feasibility study is being conducted to determine the marketability of an annual compendium of minority master's and doctoral degree recipients from CGS institutions.
3. A survey is being conducted to determine the status of minority graduate education in CGS institutions.
4. Close contact has been maintained with Thomas Linney of CGS and Newton Cattell of AGS as well as members of Congress in connection with authorization and funding of G*POP.
5. The Chairperson made a presentation in February in support of G*POP at the GAPFAC Conference, Arlington, Virginia.
6. The Committee met in Washington at CGS headquarters in July.
7. Resolutions will be submitted to the Executive Committee in support of G*POP and Precollege Education in Mathematics, Science and Technology.
8. Results of the feasibility study and survey on minority graduate education will be distributed to the membership.

JOINT COMMITTEE ON TESTING

Donald J. White, *Co-Chairman, Boston College*
Alfred S. Sussman, *Co-Chairman, University of Michigan*
Frances Degen Horowitz, *University of Kansas*
Elaine J. Copeland, *University of Illinois at Urbana*
Ernest S. Freriehs, *Brown University*
Milton E. Lipetz, *University of Colorado*
W. Dexter Whitehead, *University of Virginia*

Activity on legislative proposals further to regulate testing, both at the federal and state levels, temporarily is at an extremely low ebb. Given the present status of such legislative inactivity, there is no pressing need for Testing Committee action. *However, if you have ideas or suggestions as to things we should be doing in this connection now, we would like to hear about them.*

THE GRADUATE PROGRAM SELF-ASSESSMENT SERVICE for use in the self-study of doctoral degree programs is slowly gaining wider use and adoption. Moreover, there are plans for mounting a similar service at the master's level soon. So far as we can see, this positive program needs no particular active shove at the moment.

We have not heard from the Committee's public concerning any testing issues or problems. Item 1 in our "charge" talked about communication with

CGS and AGS members on current issues in testing as they affect graduate education. It should be noted that the COMMUNICATOR has had some brief pieces relating to what might be done if errors occur in exams, etc. QUESTION IS: SHOULD WE AS A COMMITTEE BE MORE ACTIVIST ABOUT THESE THINGS, AND THROUGH THE COMMUNICATOR, OR OTHERWISE SOLICIT FROM MEMBERS QUESTIONS AND CONCERNS IN THE TESTING AREA? If so, in your opinion, please let us know and let us know specifically upon what you think we should focus; special services for older students? for handicapped students? for international students? for minorities? for others?

At the AGS meeting this fall, Ernie Frerichs chaired a panel discussion involving Professor Lyle Jones of the University of North Carolina, former chairperson of the Graduate Record Examinations Board Research Committee and recognized expert on testing in all its aspects, and Dr. William Turnbull, former President of the Educational Testing Service, and now Scholar in Residence at ETS. Our plan is to obtain at least brief written statements from both Dr. Jones and Dr. Turnbull and to reproduce them and make them available to all CGS members at the Annual Meeting in December.

THE CGS/AAI EXECUTIVE DEANS COMMITTEE (AFGRAD)

Michael J. Pelczar, Jr., *Chairman, The Council of Graduate Schools*
Gustave O. Arlt, *Marina del Rey, California*
Clara I. Adams, *Morgan State University*
Charles F. Bonser, *Bloomington, Indiana*
Ernest Q. Campbell, *Vanderbilt University*
Wade H. Ellis, *Ann Arbor, Michigan*
George W. Kunze, *Texas A&M University*
Jules B. LaPidus, *The Ohio State University*
William H. Macmillan, *University of Alabama*
John P. Noonan, *Kansas State University*
Aaron Novick, *University of Oregon*
Rose-Marie Oster, *University of Maryland College Park*
Phyllis W. Watts, *Friant, California*

The AFGRAD Executive Deans Committee met at the African American Institute on April 22-23, 1982.

A large number of dossiers were reviewed by the Committee at its Annual Meeting. Candidates were rated on the basis of their qualifications; in many instances, recommendations were made as to which institutions might be most suitable for specific candidates.

By acclamation, the Executive Committee of Deans declared Dr. Gustave O. Arlt as Chairman Emeritus of the AFGRAD Deans Executive Committee as an expression of appreciation for the outstanding services he provided to this program.

Other matters considered at the meeting included:

1. Development of plan for term appointments to AFGRAD Executive Deans Committee.
2. Development of a plan for communication with business school organizations about requests for GMAT scores.
3. Identification and subsequent recognition of distinguished accomplishments of AFGRAD alumni.
4. Preparation of "one-pagers" with information about educational systems of AFGRAD countries.

COMMITTEE ON WOMEN

Beverly B. Cassara, *Chairman, University of the District of Columbia*
Stephen Cheston, *Georgetown University*
Hazel Garrison, *Hampton Institute*
Barry Markman, *Wayne State University*
Lucille S. Mayne, *Case Western Reserve University*
Etta S. Onat, *Yale University*
Nelva G. Runnalls, *University of Wisconsin-Stout*

The Committee met in Washington on March 24, 1982. The agenda included planning the activities for the year including the summer Graduate Deans' Workshop and the Annual Meeting.

The subject for the year, "Opportunities and Challenges for Women in Graduate Studies," had been chosen last year as the theme for the current year.

It was planned that Dr. Alison Casarett would address this subject at the Workshop in Boone, North Carolina July 11-16.

For the Annual Meeting a panel was planned to address the subject. Dr. Eric Rude will chair the panel. Representing graduate students will be Susan Scarberry, University of Colorado, Boulder. Other participants will be Dr. Lilli S. Hornig, Executive Director, Higher Education Research Service, Wellesley, Massachusetts, and Professor Jan Shubert of the Graduate School, University of Michigan.

The report of findings from the study of the "Pathways of Graduate Deans" was published in the COMMUNICATOR in April.

The Committee will meet at 4:00 p.m., November 30, 1982, at the Broadmoor in Colorado Springs. The place will be announced.

TASK FORCE ON PREDOMINANTLY MASTER'S DEGREE GRANTING INSTITUTIONS

Bernard J. Downey, *Chairman, Villanova University*
James Ballowe, *Bradley University*
Russell G. Barnekow, Jr., *Southwest Missouri State University*

Louis G. Pecek, *John Carroll University*
Albert W. Spruill, *North Carolina A&T State University*
Leslie M. Thompson, *Georgia Southern College*
Vivian A. Vidoli, *California State University-Fresno*

The CGS Task Force on Predominantly Master's Degree-Granting Institutions was charged with identifying the issues and concerns of these institutions with a view to bringing these to the attention of the membership and particularly the Board of Directors. The Task Force met briefly at the national meeting in Washington last year. Subsequently there were two conference calls, and finally a meeting in Chicago in early October.

The Task Force first surveyed the graduate deans in those member institutions which grant either master's degrees only or grant mostly master's degrees and very few doctorals. From the seventy or so responses, the Task Force identified six major areas of concern. These are:

1. Graduate administration
2. Faculty
3. Recruitment, admissions and retention
4. Master's degree programs and their quality
5. Financial considerations
6. Research at master's institutions.

It became apparent that these areas were concerns of our member institutions. Nevertheless, the Task Force recognized that the concerns of the master's institutions were not really addressed when approached from a single perspective. A report is now being prepared which will identify the concerns. In addition, the Task Force is preparing a number of general recommendations to be proposed with a view of urging the CGS Board of Directors to take appropriate steps to better serve the needs of the master's institutions. The report and recommendations should be completed some time early next year.

TASK FORCE ON PART-TIME GRADUATE STUDENTS

C. W. Minkel, *Chairman, University of Tennessee at Knoxville*
Dominic Martia, *Roosevelt University*
Herbert J. Oyer, *The Ohio State University*
Norma S. Rees, *City University of New York*
Kenneth C. Zimmerman, *University of Minnesota*

During 1982, the Task Force continued its effort to find ways for colleges and universities to better serve the needs of part-time and nontraditional graduate students. The primary emphasis has been upon determining the differential needs of the target group. Specifically, a survey of graduate students was conducted at five universities (Michigan State University, the University

of Minnesota, the University of Tennessee, City University of New York and Roosevelt University). Topics included demographic characteristics which have been shown in previous work to be useful in discriminating among graduate student groups, the most important problems faced in the conduct of graduate study, program evaluations, and the need for and use of various institutional support services. To accurately assess responses of the target group, a four percent random sample of all graduate students at the five universities was surveyed.

Currently, data from the survey of graduate students are being evaluated, and preliminary results should be forthcoming soon. From this study, priority issues may be isolated for evaluation and Task-Force recommendations or further analysis, if necessary.

TASK FORCE ON PROFESSIONAL GRADUATE PROGRAMS/DEGREES

Jussi J. Saukkonen, *Chairman, Thomas Jefferson University*
Dean Jaros, *Northern Illinois University*
Lee B. Jones, *University of Arizona*
X. J. Musacchia, *University of Louisville*
Lucille S. Mayne, *Case Western Reserve University*
Richard B. Murray, *University of Delaware*
Volker Weiss, *Syracuse University*

The Task Force, appointed on June 21, 1982, has been asked to examine the emergence of new professional programs/degrees, and how the situation has changed during the last decade. It is expected that a statement will be developed to reflect the current situation, updating an earlier document entitled "The Doctor's Degree in Professional Fields," issued jointly by the Association of Graduate Schools in the Association of American Universities and The Council of Graduate Schools in the United States.

The Task Force will meet for the first time during the 22nd Annual Meeting of The Council of Graduate Schools in December 1982. Preparatory measures have included interviews with Dr. Pelczar, several members of the CGS Board and other individuals with insight to the issue. Collection of background material has been begun with cooperation, hereby gratefully acknowledged, from the CGS staff, National Research Council Doctorate Records Project and University Microfilms International, as well as by using conventional bibliographic sources. An invitation was extended in the CGS President's Letter to all interested individuals to direct their comments and other contributions on this subject to the Task Force. The program of the 22nd Annual Meeting includes a special session on [illegible]nal Graduate Programs/Degrees," to be held on December 2, 1982.

RESOLUTION #1

Resolution on Continuation of Guaranteed Student Loans for Graduate Students

WHEREAS graduate students account for approximately one-third of the guaranteed student loans issued annually, and,

WHEREAS upwards of 600,000 graduate and professional students have borrowed money from lending institutions to continue funding individual investments in human capital, and,

WHEREAS the proposal advanced by the current Administration to eliminate graduate and professional students from the Guaranteed Student Loan Program was rejected by both the House and Senate last year, and

WHEREAS this nation recognizes the necessity of maintaining graduate education as a national reserve of manpower and ideas, and

WHEREAS graduate education combined with research is the principal asset whereby the nation continues to renew the intellectual resources that sustain needed technological and cultural advances, and

WHEREAS it has been a cornerstone of U.S. policy for twenty-five years that quality research and education of future academic personnel be supported.

NOW THEREFORE BE IT RESOLVED that the Council of Graduate Schools supports continuation of the Guaranteed Student Loan Program. CGS believes that the present broad eligibility and uniform interest rates for graduate and professional students should be maintained. If interest rates continue to fall, CGS would favor a rollback of the 5% origination fee. CGS also urges continued efforts on the parts of all parties concerned to insure prompt and responsible repayment of all GSL's. A low default rate will demonstrate the seriousness with which the graduate community views access to these loan funds. It is vital that the national system of access to capital for student loans, represented by the GSL program, with the participation of federal, state and private financial agencies be continued. It has taken over twenty years for this system to be set up and improved to its present level of effectiveness. CGS urges all participants to continue their co-operative efforts to provide low interest loans for graduate education.

RESOLUTION #2

Resolution on the 10th Anniversary of the Education Amendments of 1972

WHEREAS the Education Amendments of 1972 are now 10 years old, and,

WHEREAS the Higher Education Act as amended principally in 1972 and in subsequent years by the Congress has opened new channels of access and opportunity for graduate education through programs of student financial assistance, and,

WHEREAS this legislation and the appropriations to support its implementation have received consistent bipartisan support from members of both parties in the Congress and in sueeessive Democratic and Republican Administrations, and,

WHEREAS this comprehensive legislation has provided student financial assistance through loans and grants for a generation of young citizens to attend college and in many cases graduate school to pursue advanced degrees, and,

WHEREAS these amendments have provided through the Basic Educational Opportunity Grant, now Pell Grant Program, a base of federal support for every citizen with the ability for college; it has expanded through the Supplemental Educational Opportunity Grant (SEOG) program, opportunities for low income individuals to attend public or independent institutions of their choice. It has provided expanded levels of College Work-Study program funding to help students meet the expenses of higher education. It has encouraged all 50 states to expand their own state student aid programs through the State Student Ineentive Grant (SSIG) program. Finally, through the National Direct Student Loan and Guaranteed Student Loan programs funds have been provided through banks and campuses to assist in the financing of higher education, for both undergraduate and graduate student loans.

NOW THEREFORE BE IT RESOLVED by the Council of Graduate Schools that for all these progams, and for all the students and institutions which have benefitted from them, CGS expresses its gratitude. CGS would like to particularly commend the bipartisan supporters of education funding in the Executive and Congressional branches of our government. Together these programs have helped to provide higher education to a generation of students, the benefits of which will accrue to our society for years to come.

RESOLUTION #3

Resolution Concerning the National Commission on Student Financial Assistance

WHEREAS the Council of Graduate Schools supports the existence and work of the National Commission on Student Financial Assistance, and,

WHEREAS the National Commission on Student Financial Assistance consists of members appointed by the President, the U.S. Senate and the U.S. House of Representatives, and,

WHEREAS this body has the task of investigating and making recommendations to the U.S. Congress for changes in student financial assistance programs, including recommendations on the financing of graduate education, and,

WHEREAS CGS continues to support the research agenda for the Commission as set forth in P.L. 96-374, and,

WHEREAS CGS believes confining any discussion of graduate education to doctoral programs in the Arts and Sciences plus Engineering is to ignore or understate the issues facing this country in financing graduate and professional education, and,

WHEREAS CGS believes the commission must address squarely the vexing questions of financing professional education in the midst of increasing tuitions, and,

WHEREAS CGS believes that the Commission must also address questions of continued financial assistance to students seeking Master's Degrees. The problems and issues facing these citizens and institutions granting only Master's Degrees must not be ignored, and

WHEREAS information about trends and shortcomings is in need of solid and detailed research, especially since major changes have begun to take place in the current system of grants and loans set up by previous legislation. We lack good information on aid to the disadvantaged and a review of the progress, or lack thereof is much in order, and,

WHEREAS a series of proposals for modification and/or new programs would be very useful to have, providing it is sufficiently comprehensive to deal with the universe of graduate education as it exists. Any proposals must also reflect the legislative and political complexity that will undoubtedly accompany the next opportunity to reauthorize the Higher Education Act.

NOW THEREFORE BE IT RESOLVED that CGS believes by drawing these diverse elements together the NCSFA can perform the considerable service of providing for the first time a comprehensive picture of the problems and issues facing graduate education in the U.S. CGS believes the NCSFA can be of most assistance establishing a solid research base from which legislation and public policy can proceed. The NCSFA, by virtue of its broad base of representation and mandate from Congress, can help to cut through these concerns by setting forth the best research base available on funding trends in support of graduate education. A clear set of facts will make the task of setting public policy through legislation one that proceeds from a creditable research base. Any legislation that results will be stronger as a result. CGS wishes the NCSFA well in its work and looks forward to examining that work at its next annual meeting.

RESOLUTION #4

Resolution in Support of Full Reimbursement of Indirect Costs

WHEREAS Fiscal year 1982 saw attempts at the National Institutes of Health to reduce indirect costs by an arbitrary 10%, and,

WHEREAS despite the best efforts of several co-operating associations in higher education, present indications are that these efforts on the part of NIH, ADAMHA, HHS and OMB will continue, and,

WHEREAS both Houses of Congress have adopted language in their reports on the curent Continuing Resolution mandating extension of full reimbursement for indirect costs incurred by institutions, and,

WHEREAS biomedical and behavioral research grants have two major components, both a necessary and integral part of the research effort. These components consist of the direct costs for research undertaken at college and universities, such as equipment, salaries, and benefits, and indirect costs consisting of a proportionate and negotiated share of building and equipment use or depreciation, utility costs, administrative costs, maintenance, libraries, and all other facilities of colleges and universities that make them desirable and productive places to carry out research, and,

WHEREAS indirect costs are an essential part of the total research endeavor and are real costs borne by institutions and reimbursed under rates negotiated between colleges and universities and the federal government subject to audit, and,

WHEREAS the Council's support of full cost reimbursement of indirect costs does not in any way imply support or endorsement for a decreased number of investigator initiated research grants,

NOW THEREFORE BE IT RESOLVED by the Council of Graduate Schools meeting in Colorado Springs, Colorado at the 22nd Annual Meeting of the Council's 376 members, that CGS believes established procedures for indirect cost reimbursement should be continued. CGS urges the Congress and Executive agencies to support full indirect cost reimbursement for research undertaken at college and university facilities under current federal grants and contracts procedures. CGS opposes efforts by NIH, HHS and other executive offices to propose and execute unilateral across-the-board reductions in the negotiated indirect cost rates established by local institutions. CGS believes adequate avenues exist to provide formal review of negotiated indirect costs rates should such reviews become necessary. Where NIH or other federal agencies propose unilateral actions in this area, such actions mitigate both federal contract process and the process of negotiation that establishes institutional levels for reimbursement.

RESOLUTION #5

Resolution on International Graduate Education and Immigration Reform

WHEREAS international graduate education represents one of the most effective instruments of U.S. foreign policy, and,

WHEREAS a positive image of the United States and a deeper understanding of its purposes are increasingly important in this time of international stress, and

WHEREAS The Council of Graduate Schools is strongly committed to in-

creasing international understanding through educational and cultural exchanges, and,

WHEREAS greater advantage should be made of the opportunities to represent the positive developments of U.S. society through international educational exchange programs, and,

WHEREAS the Congress of the United States has seen fit to begin drafting proposals for a new U.S. Immigration Policy, and,

WHEREAS such proposals passed the Senate in 1982 and are still under consideration in the House of Representatives, and,

WHEREAS the Council of Graduate Schools has long supported international educational exchange programs at the Graduate level, and,

WHEREAS other major countries of the world are currently making substantial efforts and expenditures for international education and cultural exchanges, and,

WHEREAS CGS recognizes the importance of educating foreign students for service to their home countries, and,

WHEREAS many member institutions welcome foreign students, and foreign faculty to this country in the pursuit of excellent scholarship and new knowledge,

NOW THEREFORE BE IT RESOLVED that the Council of Graduate Schools takes note of the deliberations over a new immigration policy for the United States. CGS urges that the interests and needs of graduate education be considered in any attempts to reverse current immigration law. These interests include the opportunity to engage the most outstanding faculty available from anywhere in the world to promote free inquiry and outstanding scholarship in U.S. institutions. Current law allows special preference in immigration policies for college and university faculty, and CGS urges that these provisions be maintained. Regarding foreign students, CGS uges that current policies designed to encourage foreign students to study in the U.S. be continued. CGS is convinced that long term benefits will accrue to an open society that opens its doors to students from other countries. CGS also urges continuation of the present regulations allowing foreign students to adjust their status under proper circumstances. Current law and regulations provide sufficient restraint to ensure U.S. workers are not being displaced. CGS urges the continuation of current U.S. policies in this area.

RESOLUTION #6

*Resolution on G*POP: Access for Minorities and Women to Graduate Education* from *CGS Committee on Minority Graduate Education*

WHEREAS the Graduate and Professional Opportunities Program (G*POP) was proposed for elimination in the Administration's proposed FY 1983 budget, and

WHEREAS the U.S. Senate and House of Representatives saw fit to not approve the Administration's proposal, and

WHEREAS the House Appropriations Committee even approved an increase in funds for G*POP in FY 1983 that would make it the only area of graduate fellowship funding that would increase in FY 1983, and

WHEREAS The Council of Graduate Schools has long been on record in support of the G*POP program and the concept that talent necessary for the future development of our society is broadly distributed in the population without regard to race and gender, and

WHEREAS the percentages of individuals with advanced degrees among women and minority groups still shows these groups to be underrepresented of women, blacks, Hispanics, native Americans and Asian Americans in the general population, and

WHEREAS there has been a disturbing trend to eliminate specialized aid programs for minorities in the interest of economy, and

WHEREAS the role of the federal government in ending lingering traces of discrimination has recently been confirmed through the extension in 1982 of the Voting Rights Act,

THEREFORE BE IT RESOLVED that The Council of Graduate Schools in the U.S. reaffirms its commitment to advance the development of human capital through increased efforts by its member institutions to provide access to opportunity by recruiting, retaining, graduating and placing minority and women graduate students and by urging continued support for the G*POP program and similar federal efforts to promote advanced scholarship among minority and women groups.

RESOLUTION #7

Resolution in Support of [illegible] NSF [illegible] in Mathematics, Science and [illegible]

WHEREAS the United States has enjoyed world leadership in science technology research and applications since World War II, and

WHEREAS this leadership has developed in part from federal support for science education at all levels of education; and

WHEREAS colleges and universities are the final level of education for the leaders in science and technology; and

WHEREAS the quality of training in science and mathematics in the primary and secondary schools has a direct effect on the quality of students in higher education; and

WHEREAS there currently is a national shortage of science and mathematics teachers at the primary and secondary levels;

THEREFORE BE IT RESOLVED that the Council of Graduate Schools

strongly endorses a concerted effort by the federal government to improve science and mathematics education at the primary and secondary levels.

BE IT FURTHER RESOLVED that the Council of Graduate Schools urges its constituent members to support this effort actively at national, state and local levels.

RESOLUTION

Passed Unanimously by the Council of Graduate Schools in the United States at Their Business Meeting, December 2, 1982

The Broadmoor, Colorado Springs, Colorado

WHEREAS, The facilities and services at the Broadmoor have been superb; and

WHEREAS, This has made possible one of CGS's most successful meetings;

BE IT THEREFORE RESOLVED, That the CGS membership wishes to convey to the management of The Broadmoor Hotel its thanks for its contribution to the welfare of the participants and the success of the meeting.

THE COUNCIL OF GRADUATE SCHOOLS IN THE UNITED STATES

Financial Report for Years Ended December 31, 1982 and 1981

We have engaged Fox & Company, nationally recognized certified public accountants, 1220 19th Street, N.W., Washington, DC 20036, to perform the annual audit of The Council of Graduate Schools in the United States. Summarized financial data is provided below. This recapitulation is not a complete presentation of the report of Fox & Company and does not contain all the data and informative disclosures required by generally accepted accounting principles.

BALANCE SHEETS

ASSETS

	December 31, 1982	1981
Current assets	$470,119	$452,197
Fixed assets, less accumulated depreciation	5,916	6,809
Long-term investments	55,203	42,900
	$531,238	$501,906

LIABILITIES AND FUND BALANCES

Current liabilities	$100,902	$102,792
Deferred compensation	32,017	22,771
Deferred restricted income	5,174	2,117
Fund balances:		
Unrestricted:		
General Operating Fund balance	375,133	356,214
Restricted:		
Endowment Fund balance	18,012	18,012
	393,145	374,226
	$531,238	$501,906

STATEMENTS OF REVENUE, SUPPORT AND EXPENSES

	Year ended December 31,	
	1982	1981
Revenue	$435,433	$409,659
Expenses:		
Personnel	182,760	167,265
Meetings and travel	151,003	126,758
Office expenses	82,733	60,306
Gustave O. Arlt award and expenses	18	1,450
	416,514	355,779
Excess of revenue over expenses	$ 18,919	$ 53,880

STATEMENT OF CHANGES IN FUND BALANCES

	General Operating Fund	Endowment Fund	Total
Balance at December 31, 1981	$356,214	$18,012	$374,226
Excess of revenue over expenses, 1982	18,919	—	18,919
Balance at December 31, 1982	$375,133	$18,012	$393,145

Luncheon

Thursday, December 2, 1982, 12:15 p.m.

PRESENTATION OF CGS/UNIVERSITY MICROFILMS INTERNATIONAL DISSERTATION AWARD

Presiding: Jules B. LaPidus, *The Ohio State University*
Presentation by: Robert F. Kruh, *Kansas State University*
Speaker: Wilmot Hess, *Director National Center for Atmospheric Research, Boulder, Colorado*
The National Center for Atmospheric Research: A Case History in Graduate Studies and Research

John R. Merrill (left) receiving CGS/UMI Dissertation Award from Robert F. Kruh, Kansas State University, *Chairman of the Selection Committee.*

The winner of the second annual CGS/University Microfilm International Dissertation Award is Dr. John R. Merrill, Assistant Professor of Government at Lafayette College. The field for the 1983 competition was social sciences.

Dr. Merrill received his Ph.D. in political science from the University of Delaware in 1982. His dissertation, "Internal Warfare in Korea, 1948-1950: The Local Setting of the Korean War," establishes a new theory for the causes of the Korean War. Merrill's study was meticulously researched and brilliantly written; and it breaks substantial new ground in an important, yet neglected, area of study.

Concurrent Sessions

Thursday, December 2, 1982 3:30 p.m.

VII. AN ASSESSMENT OF RESEARCH DOCTORATE PROGRAMS IN THE U.S. SPONSORED BY THE CONFERENCE BOARD OF ASSOCIATED RESEARCH COUNCILS (Discussion of Report)

Presiding: D. C. Spriestersbach, *University of Iowa*
Panel: Robert F. Kruh, *Kansas State University*

Robert F. Kruh

The report is out. Long expected, it is now a fact. Despite much fanfare about remedying the shortcomings of earlier studies, the National Research Council's *Assessment of Research Doctorate Programs in the United States* essentially repeats the exercises initiated by Alan Cartter (1966) and continued by Ken Roose and Charles Andersen (1970). In each case the *pieces de resistance* are reputational assessments of doctoral programs in some 30 academic areas.

The Lindzey-Jones report (as the current edition is likely to be called if tradition is honored) claims to be an improvement, and perhaps it is. Its key virtue is said to be in a multidimensional approach. In fact, it has as many as 16 so-called measures of quality, inevitably including formidable Measure 8, the reputational rating of the faculty. Even casual reading, however, shows that some of the measures are not specifically identified with the programs being rated, while others are not consistently comparable among programs. These items, along with indices of program size, serve as a diverting adornment of the more fascinating faculty scorecard.

I have long since abandoned any hope of escaping such academic handicapping, for it reflects society's obsession with scores and ratings, whether it's the *Fortune* 500, the Redskins and the Chiefs, or the top twenty tunes of the week. Like it or not, reputational rankings are a guide or goal in human affairs, no matter the faintness of their connection to reality. Perhaps some good can come of them, but this time I can't leave well enough alone.

The Lindzey-Jones document would lead us to believe that the study is all about educational quality, that elusive concept they never define, quoting Robert M. Pirsig's often-cited lamentation from *Zen and the Art of Motorcycle Maintenance* about the impossibility of being able to do so. Ostensibly carried out to announce and promote educational quality, to advise students, and to serve in shaping educational policy, the study more aptly promises to

be the new benchmark for the work of educational sociologists who don't seem to mind this airy reduction of complex matters to a set of numbers.

Once again the Procrustean yardstick has been pressed upon the academy with much declaiming about benefits. In my view, the conceded mischief stemming from this report and its predecessors far outweighs their proclaimed benefits. Already the media are divining the destinies of universities, and computer programs are poised to aggregate institutional scores once the last volume appears. Let's admit that those in universities understand the reservations and the fine print. But if we are going to codify and advertise reputational ratings for the general public, there is an extraordinary responsibility for making clear the premises -especially where the document has the imprimatur of the National Research Council, the American Council of Learned Societies, the American Council on Education, and the Social Science Research Council, as well as the sponsorship of prestigious federal agencies and private foundations. To the uncritical or the uninitiated this authoritative overkill can easily create more confidence in the validity of the study than it deserves. Conversely, those sponsors are not so credulous as to miss the necessity for demanding from the study's authors the highest level of clarity and responsibility in its execution and exposition.

Sadly, the document is muddy and tendentious. Any reader must be impressed by the steady parade of exculpatory language, apparently designed to excuse multiple shortcomings by acknowledging them in advance. I am indebted to a colleague who remarked that the text's many warnings and disclaimers make it resemble nothing so much as an old stock prospectus.

By claiming that their perception of pitfalls is as good as that of any critic, the authors are able to disavow responsibility for misinterpretation or abuse. Beyond being such a handy place of retreat, the authors' position is portrayed as that of conduit and organizer, collating the views of the experts. They have even achieved a triumph of objectivity by having had the graduate deans themselves name respondents and serve as advisors. If anyone asks, they can safely counter, "Not me, boss!"

If that weren't enough, the study abounds with statistical handsprings that suggest an unassailable correctness. Except to the psychometrician familiar with the restricted sense of the word, insistence on the "reliability" of the study is disingenuous at best. Never mind about the fuzziness of the questions or another special word of measurement specialists, "validity," as they relate to academic quality. They're not discussed.

While the authors dwell on quality throughout, and would have us believe that they have assessed quality, their final apotheosis of the reputational measures is reduced to these abject concessions:

- [The reputational results] seem to address quality . . . (page 184)
- . . . our analysis is by no means exhaustive . . . (page 185)
- . . . the survey results provide a snapshot of . . . impressions (page 185).

And, inevitable dictum (!),

- . . it seems safe to assume that [these impressions] are more than passingly related to what a majority of keen observers might agree program quality is all about (page 185).

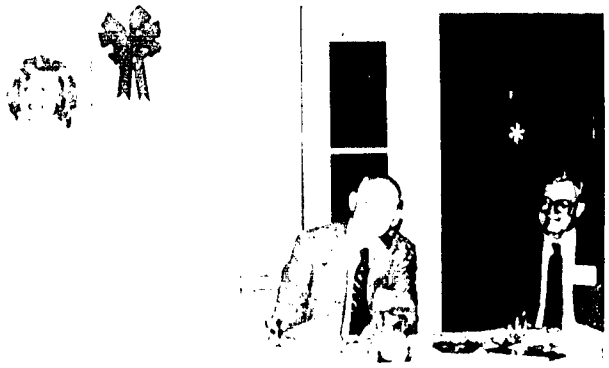
Frankly, I am not worried about the appearance of these volumes, but they *are* attracting public notice, and I'm reasonably sure we'll go through the same wave of oversimplification and abuse as before. We have survived the Cartter and Roose-Andersen reports, and if we don't survive this one, it will be for some other reason. Harvard or Berkeley surely don't need the presumed accolade, and Western Panhandle State never had the chance for one. So be it. No one suggests that there are not profound differences among institutions, for we find in this country a range from the distressed and embarrassing to the distinguished, world-class universities. We must be proud of and preserve the latter. While the former may not deserve to exist, there are many middling institutions that serve with distinction in special ways. All I am saying is that the National Research Council's study is not a particularly helpful vehicle for making the distinctions needed, even though it pretends to be.

What I find missing from the history of the rating game is a frank recognition of human nature's tendency to simplify complex matters and to rank them simplistically, not to mention a bit of humility about an awesomely ambitious task. Instead, the self-congratulatory style is tiresome, and it is an insult to the intelligence of the general academic community to give the impression of having involved that community when, in fact, that involvement came only as a token at the end of guarded deliberations by a few. Even so, I predict that, following this third installment in a series, the exercise will be revived by some similar group when the current version is thought to be out-of-date. By then, the whole process will have gained a sort of status that obviates further question about its validity and meaning.

With this realization I rest my case, but I continue to feel strongly that such insubstantial study issued under a mighty aegis should not go unchallenged by graduate deans, who may represent what is most at stake.

VIII. MASTER'S OF LIBERAL ARTS PROGRAMS/MASTER'S DEGREE INSTITUTIONS

Presiding Vivian A. Vidoli, *California State University, Fresno*
Presenters Bernard J. Downey, *Dean of the Graduate School and Director of Research, Villanova University*
William H. Maehl, Jr., *Vice Provost, Continuing Education and Public Service, University of Oklahoma*



Vivian A. Vidoli, California State University, presides at a concurrent session on *Master's of Liberal Arts Programs, Master's Degree Institutions*. Other participants are Bernard J. Downey, Villanova University and William H. Maehl, Jr., University of Oklahoma (right).

Bernard J. Downey

My role this afternoon is to report to you on the activity of the CGS Task Force on the Concerns of the Master's Degree Granting Institutions. I would like to begin by giving a little background which will explain the existence of this task force.

Over the years there has been considerable discussion among graduate deans from master's institutions regarding the efforts made by CGS to give appropriate attention to the concerns of these institutions at the national meetings, the summer workshops, in CGS publications and in the general activity of the CGS office. It was always recognized that there has been some attention regularly given to the master's institutions - certainly this very session is evidence of this. Nevertheless, among many deans there has been dissatisfaction on this score.

Over the past three or four years some of us from master's institutions who were members of the CGS Board began to get a sense that the master's insti-

tutions were not necessarily getting their fair share of CGS services. Board agenda naturally addressed matters related to the entire CGS membership. Most attention was given to issues which involved graduate education in general. And, of course, this is as it should be. However the net result in planning for meetings, workshops, special sessions, etc., often resulted in minimal attention being given specifically to the concerns of master's institutions.

In the summer of 1981 this sense of lack of attention was brought up at the CGS Board meeting. There was immediate and unanimous agreement that positive action should be taken to address this matter. The Board decided to establish a CGS task force which was to attempt to identify the specific concerns of master's degree-granting institutions and also to make recommendations regarding the means which CGS should take to address these concerns. The task force consists of the following.

James Ballowe, *Bradley University*

Russ Barnekow, *Southwest Missouri State Univ*

Louis Peeck, *John Carroll University*

Al Spruill, *North Carolina A&T State Univ*

Les Thompson, *Georgia Southern College*

Vivian Vidoli, *California State Fresno* and [illegible]

I can assure you that these people with whom I have been working are extremely capable, deeply concerned about master's institutions and have been working very hard to carry out the CGS charge.

The first efforts of the task force which was appointed last fall were to seek information from the deans of the master's institutions regarding their perceptions of issues which should be addressed. In response to a letter we sent out, we received more than seventy responses. Two things were immediately evident:

1. There was need for the action;
2. There were many issues to be put on the table.

The task force, encouraged by the statements of need, proceeded to organize the issues around a limited number of general themes. Ultimately we established six major areas of concern:

1. graduate administration,
2. graduate faculty,
3. graduate students (recruiting, admission and retention),
4. the programs themselves and their quality,
5. financial considerations, and
6. research in master's institutions.

Each of the task force members was [illegible] a first draft was developed. Since last year's CGS meeting in Washington, there have been two conference calls, a meeting in Chicago and a meeting here on Tuesday, and lots and lots of correspondence and telephone calls.

Very early on, it became evident that the concerns of the master's institutions were not all that much different from the concerns of the doctoral insti-

tutions. At that point conceivably one might have concluded that there was no need to proceed further. After all, the overall needs of the membership were discussed regularly at Board meetings and at the national meetings, workshops, etc. However, it became obvious quickly that there was a difference. On nearly every topic which was explored, one could see the difference. And this difference suggested strongly that there be some separate attention given to these matters.

In the first area—graduate administration—for example, consider the position of the central administration regarding graduate education. In the doctoral institutions one finds total commitment. In many, if not most master's institutions, graduate education is not a first priority!

If we consider the type of student – in doctoral institutions most students are full time, in master's institutions most will be part-time – it is evident that graduate administration means something entirely different in the two cases.

Again if you talk about graduate faculty, you have substantive differences in the two types of institutions. In the doctoral institutions one envisions primarily outstanding scholars, in the master's institutions one sees a more complex picture. There is heavy commitment to good teaching, the teaching loads are usually higher, and scholarship is not necessarily of high priority. Indeed graduate deans at master's institutions need to insist on high level qualifications for the graduate faculty in order to insure program quality. This is normally not a problem at the Ph.D. granting research oriented institutions. Indeed, when the question of having a graduate faculty is discussed, the doctoral institutions usually say it is not necessary while the master's institutions find it very necessary.

Even the kind of faculty may often be different. In doctoral institutions the primary faculty role is research. Quite often in master's institutions, particularly in professional and quasi-professional programs, there is great need for practice-oriented faculty.

In the area of recruiting and admission, doctoral institutions look for a relatively small number of highly qualified students who will pursue intensely research-oriented doctoral programs. In the master's institutions one tries to maximize the pool of qualified students, mainly through advertising in the local area. Quite often the clientele are part time students and all who are qualified are accepted. Retention also becomes different when you are dealing with such students who may often skip a semester or two, compared to full time doctoral students who tend to be ever present until their doctoral dissertations are completed.

The very nature of master's degree programs can be distinguished from that of doctoral programs. There is greater emphasis on course work, often fewer seminars, often no thesis, sometimes even no comprehensive examination. In attempting to assess the quality of master's programs, one cannot simply use an overall approach which applies to all graduate programs. Indeed, CGS has recognized this difference and a new program to assess the

quality of master's programs, the result of joint efforts by CGS and ETS has just been announced.

The areas in which financial support is needed in master's institutions are the same as those in doctoral programs. However the efforts to be made are quite different. In doctoral institutions it is not uncommon for million dollar budgets to exist for a particular program. In master's institutions quite often one needs to fight for every penny. Whether you are talking about assistantships, support for faculty research and development, or library, laboratory and computer facilities, it is often an uphill battle. Ultimately, it is the priority which graduate programs receive or do not receive in master's institutions that makes the difference.

Finally, research in doctoral institutions is supported extensively, both by external funding and through firm commitments of the institutions. In master's institutions, there is relatively little external funding and less institutional commitment.

From these and many other examples we can draw this general conclusion, i.e. that although the concerns of the master's institutions are literally the same as those of the doctoral institutions, there are substantive differences in the significance of those concerns and therefore in the approach to solutions as we compare the types of institutions.

So what do we do about all this?

The task force is currently completing its report which spells out in detail the special character of those common concerns as applied to master's institutions. This report will be submitted to the CGS Board sometime early in the new year.

Now — as we mentioned earlier — the task force was charged not only with the identification of the concerns of the master's institutions but also with the development of recommendations to insure a mechanism by which these concerns would be addressed. We are proposing three such recommendations.

1. There should be a permanent standing committee for the master's institutions, which should meet at least once a year at the time and place of the national meeting to continue to identify current issues and concerns and to advise the CGS Board of Directors of such. Membership on the committee should rotate so that new points of view would be considered. Due consideration should be given to geographical distribution, representation for minorities and women, and representation from both private and public institutions.
2. There should be appropriate representation [illegible] from master's institutions on the CGS Board of Directors and on the Executive Committee of the Board.
3. The issues and concerns identified with master's institutions should be addressed in a continuous manner
   (a) in the programs of the national meetings, in summer workshops, and in appropriate special conferences and symposia;

(b) in CGS newsletters and other releases;
(c) by timely publications of CGS documents related to such issues and concerns;
(d) in CGS communications and associated activities with affiliated regional organizations;
(e) in CGS relations with the federal government and its agencies by giving due attention to the roles of the master's institutions in graduate education and research, and
(f) in CGS relations with educational associations by giving due attention to the roles of the master's institutions in graduate education and research.

I would like to reiterate that the task force does not take the position that CGS has done nothing in these areas for master's institutions. The document on the master's degree, the new joint CGS-ETS program for the assessment of the quality of master's degree programs, and concurrent sessions such as this, attest to the positive actions on the part of CGS. Nevertheless, the sense is that much more needs to be done and on a regular basis.

Hopefully with the detailed report in the hands of the Board and their implementation of our recommendations, there will be continuing improvement in the services to the ever-growing portion of the membership representing master's institutions.

William H. Maehl, Jr.

The premise of this session, I believe, is to discuss programs at the master's level offered by institutions whose only graduate work is at the master's level. You may think that I should disqualify myself, since I come from an institution that is a comprehensive state university offering work at all levels through the doctoral degree. I am here however as a representative of an association of institutions offering a special type of master's degree, and many of our members are institutions that offer no work above the master's level. That group is the Association of Graduate Liberal Studies Programs.

As the name suggests we are institutions offering graduate liberal studies degrees. These programs have various designations, such as the Master of Arts in Liberal Studies, the Master of Liberal Studies, the Master of Liberal Arts or even such titles as Master of Humanities.

These degrees are sponsored by a variety of institutions. Some of them, such as my own or the University of Southern California, Southern Methodist University, The Johns Hopkins University, Georgetown University, New York University and others, are comprehensive doctoral institutions. Others, such as Kean College of New Jersey or Mary Washington College, offer this among other master's degrees. And finally some offer this as their only master's degree.

To the best of our knowledge the first graduate liberal studies program was initiated at Wesleyan University in 1952 as their Master of Arts in Liberal Studies. It began as a summer program to enrich the liberal arts education of teachers and continues today still to attract a largely teacher audience.

In subsequent years programs were established elsewhere so that by 1975 it was possible for representatives of twelve institutions to meet at Hollins College in Virginia and found the association that I represent. At present there are twenty-eight full institutional members of the association and another twenty-three associate members who are in the process of developing programs or in a probationary period prior to becoming full members. There are other similarly designated graduate liberal studies programs in existence, some of them of high quality, although I will base my comments on those which are members of the association and which conform to its criteria for the offering of programs

By this time you may ask just what are graduate liberal studies programs. In response let me say that although the programs vary considerably in size, organization, sponsoring institutions, and details of curriculum they share a common purpose. They seek to offer mature students a graduate degree which is interdisciplinary in nature and nonprofessional in intent (that is, not specifically intended to train students for a particular vocation, to provide accreditation for a profession, or to prepare students for further graduate study). The programs adhere specifically to the values of liberal arts education, *but at the graduate level*, offering students drawn from a variety of backgrounds and professions an alternative to the usual specialized graduate programs.

All programs are interdisciplinary. They achieve this in different ways: some by team teaching approaches, others bycertain courses designed on an interdisciplinary basis, and yet others by asking faculty to adopt an interdisciplinary approach to their subject matter. Throughout there is an emphasis on looking at the specific content of study in relation to the broader context within which it belongs. The program's objective is to provide an alternative approach to continued learning by offering a program for students who seek broad, interdisciplinary paths to knowledge.

The programs are designed specifically for adult part-time students. The curricula seek to respond to student motivation that may range from career related concerns to the desire for intellectual stimulation. In all cases these interests reflect a concern for a personally rewarding further education in a humanistic context

The processes of delivery of the program take into account the circumstances of adult students, both in counseling and the selection of time and format of delivery. In responding to these concerns, the graduate liberal studies programs differ from many other continuing education offerings which may also serve such students, in that they are degree programs, carefully

structured, coherent in curriculum, founded on a definite set of requirements, and rigorous in the intellectual challenge they pose for participants.

Their interdisciplinary curriculum may be said to extend the liberal arts character of American undergraduate education to the graduate level. In a sense they represent a return to the original concept of the medieval master's degree which pursued the concerns of the baccalaureate degree to a higher level. They are graduate programs—formally so in requiring the bachelor's degree for admission, but more significantly in the maturity expected of students, the expectation of responsible and frequently independent work and thought, the level of discourse in classes and of comprehension necessary to meet degree requirements (papers, examinations, projects and the like). They represent then, a particular mode of graduate study, in breadth intentionally different from traditional departmental graduate programs, in structured curriculum and academic rigor unlike less consciously ordered programs for casual students.

In looking over the offerings of various member institutions I see three common curriculum elements that stand out. First of all, virtually all programs require some core elements which are specially designed for the programs. At the University of Oklahoma we have a special introductory seminar which is subsequently followed by other seminars that bring the students back to a recognition of their commonality in the program while at the same time they may pursue special individual interests. At other institutions special courses are usually designed for the early phases of the program.

Second, almost all of the programs have some integrative and summative experience in them. This takes various forms, most commonly an extended piece of written work completed near the end of the program, but it may also be a special seminar or concluding course which draws the student's total experience together into a coherent whole. Finally programs usually have some theme or orientation which is unique and distinctive to the home institution. The most striking example of this, perhaps is, a series of courses in the history of ideas at The Johns Hopkins University, representing the strength of the Lovejoy tradition there. St. John's College of Annapolis and Santa Fe emphasizes its tradition of the Great Books. Georgetown University requires students to take some courses reflecting human values along with other requirements. The University of Oklahoma reflects the commitment to educational outreach that characterized its earlier Bachelor of Liberal Studies program.

We are frequently asked, what makes what you do in graduate liberal studies programs graduate? How can broad liberal education at the same time be called graduate education?

Basically the answer is that it is graduate because we say it is.

That is not so arrogant and self-centered a statement as it may sound. The description of this form of liberal studies as graduate is rooted in the same canons and practices that apply to other graduate programs, and the most important of those is the judgment of the academic faculty about what it is

doing. Graduate liberal studies faculties belong to the graduate faculties of their institutions and bring that level of expectation to their work. They work under the leadership of the institutional officer responsible for graduate programs and conform to institutional graduate standards.

More specifically, the students in graduate liberal studies programs have passed the first credentialling milestone on the academic road. They have earned creditable bachelor's degrees and are eligible for graduate study. In almost all cases graduate liberal studies programs apply the same criteria of selectivity for admission to their programs that their own institutions apply to applicants for graduate study in other programs.

Second, by virtue of their own experiences, the probability is that graduate liberal studies students have grown rather than shrunk intellectually since leaving college. Far from having lost what level of intellectual attainment they had when they earned their bachelor's degrees, their experience, involvement, work, reading, and other exposure to learning probably have caused them to change and grow during that time.

Third, the faculty who are responsibly engaged in the creation and offering of graduate liberal studies programs are themselves accomplished teachers of graduate students. They have no desire to jeopardize the standards to which they adhere and for which they are responsible. They seek to uphold a graduate level of learning by the customary practices of setting standards, joining together to maintain and advocate those standards, and seeking to discourage violators. Our group, the Association of Graduate Liberal Studies Programs, has that as one of its major objectives.

Finally, an examination of the experiences of students and their performance outcomes in graduate liberal studies programs exhibits a level of complexity, a range of breadth, and a sophistication of mastery and expression that fully warrants graduate designation. While not the same as highly specialized graduate programs and not necessarily as intense in their exploration of specific questions, graduate liberal studies programs live up to the intellectual standards that have generally characterized graduate work. In our view there is no embarrassment to be associated with the concept of graduate liberal studies.

Graduate liberal studies programs are especially suitable for offering at institutions which pursue study only to the level of the master's degree. The resources necessary to mount the programs would not be as great as those required by doctoral level institutions. Normally a master's degree granting institution will already have a cadre of highly qualified faculty which will include persons with the ability and the inclination to work in graduate liberal studies programs. Further this sort of program will not require the depth of faculty in individual disciplines that full disciplinary master's degrees do.

These programs provide such institutions a means of addressing the growing interest of an already well educated public in enrichment and further educational development. They may even meet the career related needs of midca-

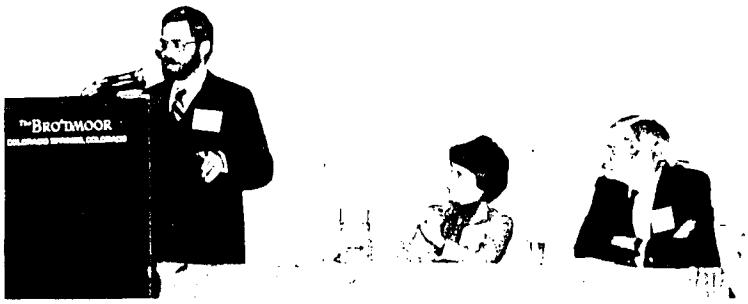
reer professionals who no longer require such intensive specialization in their disciplines but who seek broadening educational experiences that will enable them to deal with complex problems of policy and judgment. Recent comments of William Norris of Control Data Corporation, reported in the *Chronicle of Higher Education* suggest that coherent graduate liberal studies programs would confer on many baccalaureate degree holders the capability for analysis and judgment that many corporations desperately need. These programs are capable of being offered even by baccalaureate level institutions which have not previously undertaken graduate study, provided the necessary care and development is taken in preparing them.

At this point the Association of Graduate Liberal Studies Programs can offer valuable assistance. Collectively the association represents a considerable fund of experience. Some of the country's strongest academic institutions have conducted programs over many years and have maintained high quality in these along with their other degree offerings. It is an objective of the association to assert a high standard of quality and coherence in graduate liberal studies programs and new applicants for membership must pass a rigorous scrutiny by those institutions already offering programs. We try to provide guidance and assistance in development to institutions planning to undertake new programs and we try especially to support institutions with limited previous experience in graduate study. The association has held grants both from the National Endowment for the Humanities and from the Fund for the Improvement of Postsecondary Education to carry on such dissemination and development work. We provide a network for the exchange of experiences and ideas among those working with graduate liberal studies. Our annual meetings are devoted in large measure to programmatic concerns and members of the association are available for consultation as requested by other institutions.

Those of use who are engaged in this work believe we are answering an important educational and social need. Our experience over thirty years and through the sponsorship of many thousands of degree candidates leads us to have confidence in the quality and academic worth of the programs we offer. We believe the Master of Liberal Studies degree or whatever other designation it may carry is taking its place among the respected master's level credentials offered in American higher education and we encourage other institutions who recognize a constituency for such programs to consider undertaking them.

IX. GRADUATE EDUCATION IN THE HUMANITIES: SOME OPTIONS FOR THE FUTURE

Presiding: Reuben W. Smith, *University of the Pacific*
Presenter: Nancy Risser, *Director of Community Relations, CBS Inc.*
The Power and the Responsibility: A Proposal for Action



Richard Ekman, National Endowment for the Humanities (*at the podium*) *talks about New Priorities at N & H during a session on Graduate Education in the Humanities: Some Options for the Future at which Nancy Risser,* CBS Inc. *also spoke. At right is Reuben W. Smith,* University of the Pacific, *who presided.*

Nancy Risser

INTRODUCTION

This summary is based on information gathered in discussions with humanities students and faculty, placement directors, and humanities graduates as part of a project, "Non-Academic Careers for Humanities Ph.D.s: Preparing the Faculty to Assist Graduate Students," sponsored by the graduate deans of the member institutions of the Committee on Institutional Cooperation. The project was implemented over the period 1980 to 1983 with funding from the National Endowment for the Humanities, the Fund for the Improvement of Post Secondary Education, and the Ford Foundation *

*The author, co-director of the project, was Assistant Dean of the Graduate School and Assistant Vice Chancellor for Research at the University of Illinois, Urbana-Champaign, one of the participating institutions. In January 1982, she left academe to assume new responsibilities in the corporate world.

ROLE OF THE GRADUATE SCHOOLS

The graduate schools and the graduate deans are perceived as having the authority and the power to influence and assist graduate students and faculty in developing appropriate and creative policies and programs on non-academic careers for humanities Ph.D.s. They can provide leadership to faculty, increase visibility of the issues and of the resources available on the campus, give credibility to the concept of non-academic careers, and take leadership roles in developing workshops, seminars, and other programs for both graduate students and faculty.

THE PRESENT SITUATION

1. *Faculty indifference* is the most frequently noted attitude. Faculty and students alike report that many faculty are indifferent to the need for students to explore career options outside of academe and to the stress associated with the current employment situation. Students and graduates tend to perceive the faculty as not only indifferent to their situation but potentially hostile and critical of the idea of pursuing a career other than teaching and scholarly research
2. *Faculty who are interested in working in this area lack non-academic experience.* Faculty who are interested in assisting graduate students have virtually no professional work experience outside academe, do not feel competent to provide counseling or career information to their students, and do not know where to begin to build the network of contacts and the knowledge. Many of these faculty have expressed a desire for assistance in this area, including arranging conversations with people in business and government and possibly visits and one-week "observerships" to learn more about people, positions, and contexts.
3. *Career counseling services for graduate students are reported to be inadequate on most campuses.* Placement offices are often perceived as services for undergraduates and are often viewed as a resource for graduate student "failures." Graduate school endorsement of these services appears to increase their legitimacy. Budget cuts are resulting in fewer resources available in these offices, however
4. *Curricula in some departments are being fortified with increased academic requirements in the traditional humanities courses.* Editing, publishing and business writing options are being reduced despite the fact that these may be helpful to those seeking non-academic opportunities.
5. *Business courses are often closed to humanities students* because of the enrollment crush in the business schools.
6. *Enrollment-driven budgets clearly influence departmental openness to students taking courses outside the department.*
7. *Low faculty morale* resulting from their own limited opportunities for

mobility and growth is compounded by the uneasiness created by the bleak academic job market for their graduate students.

8. *Faculty ambivalence* about when students should be encouraged to explore non-academic careers options, early or late in their programs, may be contributing to paralysis.
9. *Faculty roles in placement will be altered as more students seek non-academic careers.* Faculty will not have in the near future adequate or appropriate experience and knowledge to function as primary advisers in career planning and placement of their students in non-academic careers, thus altering significantly their traditional role in placement.

RECOMMENDATIONS BY HUMANITIES Ph.D.s WHO HAVE PURSUED NON-ACADEMIC CAREERS

1. Maintain the present rigor and substantive focus of the Ph.D. training in the humanities. Most graduates believe that the curriculum provides a sound education and that it should not be diminished.
2. Permit flexibility within the curriculum. Encourage (and allow) students to take coursework in other disciplines to develop more skills and to increase their familiarity with professions other than teaching.
3. Increase exposure to the non-academic sector for both faculty and students.
4. Provide workshops and seminars to familiarize students with a broad range of organizational structures and styles.
5. Emphasize the importance of completing the dissertation as an indicator of the ability to complete a project. The Ph.D. is recognized and appreciated as an accomplishment.
6. Offer opportunities for students to learn to work in contexts where they are part of a team. Humanistic scholarly research is solitary and does not prepare students for working with others; many students are not aware of alternative workstyles.
7. Educate students to the fact that deadlines are critical outside academe—there are no deferred grades outside academe. The employer seeks the best possible product in the time available rather than a perfect product in unlimited time. This difference often comes as a shock and sometimes the adjustment is never made.
8. Recognize the low self-esteem of students and the added burden this creates as students explore career options and try to identify their own skills.

OBSERVATIONS BY HUMANITIES Ph.D.s REGARDING SOCIALIZATION WITHIN GRADUATE EDUCATION IN THE HUMANITIES

1. Negative attitudes towards business shaped by the literature itself.
2. Passive behavior encouraged; risk-taking discouraged.

3. Assumption that business rejects critical analysis.
4. Superiority complex.
5. Ambivalence about money and salaries.
6. Solitary, individualistic workstyles.

NEEDS

1. Well-informed and supportive faculty, knowledgeable about the nature of opportunities for non-academic careers for humanities Ph.D.s and familiar with resources available to students.
2. Increased contact between humanities faculty and students and people in the non-academic sector.
3. Context for creative thinking about the humanities in a contemporary society and a better understanding of the "lenses" the humanities provide for analysis and problem solving.
4. Consideration of the most responsible and the most productive stage of academic training to increase student awareness of career options and to encourage exploration of non-academic careers as humanists. (Early in the program, the student can develop options; the student may also drop out of the program. Late in the program the students' bitterness and anger are intense and a non-academic career is more apt to be equated with "failure.")

COURSES OF ACTION FOR GRADUATE SCHOOLS AND DEANS

1. Establish and maintain a faculty steering committee to provide leadership and continuity for campus efforts.
2. Build a resource base of non-academically employed humanities Ph.D. alumni.
   a. Encourage communication between academic and non-academic humanists.
   b. Develop a network of people who might assist in programs and seminars on non-academic career topics.
   c. Provide a bridge to the academic world for those graduates who are interested in maintaining a link with scholarly research.
3. Provide career counseling services for humanities graduate students.
4. Develop programs to better inform the faculty about non-academic careers for humanists.
5. Develop workshops and seminars for students.
   a. Job search skills and strategies
   b. Skills assessment
   c. Organizational structures and behavior
6. Inform students about the academic job market and the opportunities in non-academic careers.

7. Establish internships for faculty and for students.
   a. Internal to the university
   b. External, in non-academic contexts
8. Develop opportunities for faculty and for students to visit businesses and government offices as observer-learners.
9. Structure teamwork experiences for graduate students as a part of their university experience.
10. Eliminate barriers to students enrolling business and other non-humanities courses.

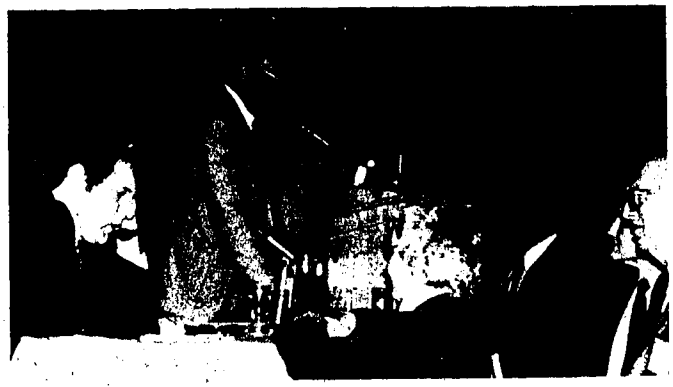
CGS President *Michael J. Pelczar, Jr. talks with program participants Linda Wilson*, University of Illinois, *and Nancy Risser*, CBS Inc., with an unidentified attendee between them.

Plenary Session IV

Friday, December 3, 1982, 9:00 a.m.

SCIENCE, TECHNOLOGY, AND THE HUMANITIES

Presiding: C. J. Nyman, *Washington State University*
Presenter: John F. Slaughter, *Director, National Science Foundation and Chancellor Designate, University of Maryland College Park*



Meeting attendees surround the presenters at the *Science Technology and the Humanities* plenary session: John F. Slaughter, former Director, National Science Foundation and now Chancellor, University of Maryland College Park (at the podium) and (at left) William J. Bennett, Chairman of the National Endowment for the Humanities.

John F. Slaughter

INTRODUCTION

Whenever I am asked to comment on the importance of science and humanities to each other, I am reminded of the famous remark of the late Adlai Stevenson Jr., when he said that the world might be a better place "if we could humanize the scientists and simonize the humanists."

In a more serious vein and more than a century earlier, in 1869 to be exact, a great American educator, Charles William Eliot, noted in his inaugural

speech, as its president that Harvard University "recognizes no real antagonism between literature and science and consents to no such narrow alternatives as mathematics or classics, science or metaphysics.

"We would have them all," he said, "and at their best."

I think none of us questions that the ultimate aim of education continues to be the improvement of the human condition by expanding knowledge in all possible fields. Most educators by now have rejected the narrow alternatives and laid to rest the notion that science and the humanities, physics and metaphysics are incompatible.

Actually, the "grand unification" isn't so new.

Vannevar Bush talked about science as "ministering in a practical manner to the needs and welfare of mankind." He was concerned chiefly with basic science and engineering, as I have been. But he recognized, as Eliot did, that a balanced education requires that the natural sciences, the social sciences and the humanities speak to each other and work *together*. In fact, the harmonious relationship of these separate disciplines goes back to the double helix of Trivium and Quadrivium and threads its way through the history of education.

As it crossed the ocean, it was personified in our early statesmen, in the character and activities of Ben Franklin and Thomas Jefferson. Suitably, the medal that the National Science Foundation presents to distinguished foreign scientists who visit this country bears Franklin's likeness on one side and on the other the words, "philosophy, literature, science, patriotism."

"Science" in the broad sense includes mathematics. And at present, when mathematics necessarily serves as the tool of other sciences, is it too much to ask that physicists and chemists and engineers remember that Plato stressed it as a preparation of the intellect for dialectics and philosophy? Or that humanists keep in mind that Aristotle managed to estimate the circumference of the earth, which he understood was round, with an accuracy which must be considered for his day, an extraordinary achievement?

The case for the contribution of science to the humanities and the humanities to science has been made many times over. Indeed, it is as important for scientists to understand modern problems in their historical perspective as it is for humanists to make their subjects relevant to contemporary scientific and technological concerns. Perhaps that is why it is especially frustrating to recognize that while scientific research in this country is flourishing—partly because of federal support over the past three decades—science education is now flagging.

Before I begin to discuss how balance in education is served by bringing scientists and humanists together, I want to express my conviction that such balance is first served by raising education in mathematics and the natural sciences to a position of greater importance and excellence than they now experience—to have it "at its best."

IMPORTANCE OF SCIENCE EDUCATION

A study* sponsored by the National Science Foundation, the National Endowment for the Humanities and the Department of Education recently reported that more undergraduates are presently enrolled in English and American literature courses than in *all* classes in chemistry, physics, astronomy, computer science and the earth sciences combined. We may well ask where our future graduate students, post-docs and teachers of science and engineering are going to come from if this trend continues. And how will industries that depend on trained manpower for creative research in science and engineering maintain their competitiveness if science education falters?

This problem has to be addressed at all levels—not only by graduate schools, but even at the secondary school level, where math and science education seriously begin.

As for having them "at their best," Thomas Huxley had something to say about that in a speech he made as president of Britain's Geological Society the year of Eliot's inaugural address at Harvard. Huxley compared mathematics to a "mill of exquisite workmanship, which grinds you stuff of any degree of fineness—nevertheless what you get out depends on what you put in." I think modern computer specialists are saying something similar.

Having made that point, let me return to the necessity for a dialogue between science and the humanities and having each "at its best."

Some of you may have observed that *Chemical and Engineering News*, in the October 25th issue, published a speech by David Saxon, president of the University of California, in which he mentioned the "dangers of scientific illiteracy" and warned that "the indisputable importance of science to the future of American society should not blind us to the fact that a scientific education, by itself, is not enough—the study of history or philosophy is as much a part of becoming educated as the study of physics or chemistry. And vice versa." These comments appeared on the editorial page of a publication received weekly by more than 120,000 chemists and engineers. As I said in a commencement address I delivered at the University of Mississippi in May, 1982, educated citizens should know both Milton and molecules, Chaucer as well as chemistry.

Although I have recently moved from the National Science Foundation to the University of Maryland at College Park, I know you are interested in some programs at the NSF in which science and the humanities meet.

Two programs at the National Science Foundation were specifically designed for this purpose. One is the History and Philosophy of Science Pro-

*"Undergraduate Student Hours in Science, Engineering and the Humanities," published by the American Council on Education.

gram; another is the Ethics and Values in Science and Technology Program (EVIST).

NSF PROGRAM: THE HISTORY AND PHILOSPHY OF SCIENCE

The National Science Foundation made its first grant in the history and philosophy of science in 1956—six years after NSF was established by Congress—and before there was any real program with such a name.

There are several major universities across the nation with strong programs now in the history and philosophy of science—the University of Pennsylvania, Harvard, and Indiana University stand out, as well as such technical institutions as Rensselaer, Lehigh and Michigan Tech, among others. I am interested that some technical universities are now required to have courses in this field in order to win accreditation.

It's a new field, rather diffused at present, with teaching jobs in short supply. Most of the work in the area is very specialized—editorial work on major publications, like the Edison, Darwin, and Einstein papers, archival projects, and, of course, museum work. But the history and philosphy of science is a field that will grow. I think we may see an increase in jobs in the next five to ten years. The public in general should become more aware of its importance, and I imagine that some new figures, on the order of Thomas Kuhn of MIT, will emerge to stimulate new student interest.

With the real need for quick and accurate information, major documentation centers for the history of science in specific disciplines should increase in importance. NSF has supported the director and many researchers at the American Institute of Physics Center for the History of Physics in New York City and some reasearchers at the Babbage Institute for the History of Information Processing at the University of Minnesota. The current head of the Babbage Institute, Arthur Norberg, was formerly program manager for NSF's EVIST program. The director of the new center for the history of chemistry established by the American Chemical Society at the University of Pennsylvania is an NSF grantee. Through MIT, NSF has also been involved in helping the Joint Committee on Archives of Science and Technology (JCAS) develop guidelines for identifying historically important science source material.

Oral history is a growing part of this—including the oral history of some industries. And women are coming into the field in increasing numbers. Margaret Rossiter, from the University of California at Berkeley, will manage NSF's History and Philosophy of Science Program for the next eight or nine months. Her book, *Women Scientists in America. Struggles and Strategies to 1940*, has just been published by The John Hopkins University press.

The University of Maryland has a well-known former physicist, Stephen Brush, who is now working in the discipline of the history and philosophy of physics.

Ethics and values in science and technology is another area in which the federal government, through NSF alone and jointly with the National Endowment for the Humanities, attempts to bridge the gap between science and humanities.

EVIST was established in 1971 when reports of the John F. Kennedy Foundation-sponsored symposium on ethics in medicine drew the attention of then National Science Foundation Director William D. McElroy. Coincidentally, that was around the time when Herman Lewis, head of NSF's Genetics Biology program, first became concerned with the implications of breakthroughs in biology that could lead to genetic engineering. Lewis's report on the subject reinforced McElroy's decision to set up the Ethics and Values Program. That was four years before the famous Asilomar Conference took up the question of ethics and biohazards and drew public attention to the issues.

Now, EVIST has a new home in NSF's Division of Research Initiation and Improvement. Total funding by NSF and NEH for the EVIST program reflects changing priorities, growing from $530,000 for 17 awards in 1975 to a high of $2,723,000 for 37 projects in 1981, and dropping back to $1,400,000 for about 23 projects in 1982. The budget for 1983 is now being worked out.

EVIST supports research on the ethical and human value aspects of current science and technology issues, including projects on ethics in the science and engineering professions. It also supports conferences, symposia and workshops dealing with such questions. For instance, with EVIST support the American Bar Association recently hosted a National Symposium on Personal Privacy and Information Technology.

Over the past five years, EVIST has developed with the National Endowment for the Humanities a joint review process for research on ethical questions in science and technology. For example, Peter Brown, at the University of Maryland, has support from both NSF and NEH to determine how judgments were formed in carrying out the 1973 Endangered Species Act to preserve certain wildlife.

Other researchers at other institutions have looked at value judgments made in establishing regulation of hazardous substances, in placing responsibility for the accident at Three Mile Island, in the use of animals in scientific research, in the biological effects of microwave radiation—and a variety of other highly sensitive subjects of interest to government and the general public.

Naturally, the EVIST program is interested in questions that affect future generations—especially questions of energy and the environment. It is supporting inquiries into decisions on land use, waste disposal and the treatment of sludge that are creating water problems in Michigan, New Hampshire and Maryland. And it has funded research on energy policy that has produced a new book on *Energy and the Future*.

These ethics and value questions are growing in importance. I believe most

historians place the development of a view of science as good or evil in itself in the first three decades of the 20th century, when there was very rapid technological change. Of course, science in itself is neutral. It is only when it reaches the stage of application that it raises ethical or value questions—and evokes apprehension or applause.

But this is something we have to deal with, particularly now, as we enter another major scientific revolution based on developments in computer technology and bioengineering—developments that will affect the home, the university, and the workplace. EVIST conferences and workshops in which experts from the sciences and humanities meet provide scientists an opportunity to reassure humanists that applications do not have to be de-humanizing—that they can be liberating. Who can deny that the resolution of conflicts over values is one of the most challenging tasks of our times? Or that it requires a broadening of our fundamental concepts of higher education?

I'm sure many of us agree with James Botkin, co-author of *Global Stakes: The Future of High Technology in America*, who in a recent interview with the editor of *US News and World Report* said that "There needs to be a rethinking of the role of the social sciences and humanities in the general education of college students to insure that they have both technological training and grounding in values and ethics. If they do not have both, we could end up with either technological illiteracy or a technocracy."

Questions that need answers—that influence policymakers, decisionmakers—must be based on solid science as well as human concern.

But scientists are well aware that they can't give the answers to the question "What are we going to do with the knowledge we gain?"

Clearly science, technology, ethics and public policy meet in the environmental sciences, energy, and natural resources issues and a host more—sometimes where it is least expected.

Take engineering. I am told that humanists feel threatened by engineers, and I regret that this is so. I believe it is important to look at engineering in a socio-economic context as well as from a scientific perspective. We have to address questions like: Just what *is* building failure? The collapse of physical features, as in the catastrophe at the Hyatt Regency, is really very rare. But social failures? They abound. The Pruitt-Igoe public housing project in St. Louis was certainly not a physical failure. But it had to be razed because, as public housing, it was a social failure. As a judge in Atlanta said after the Model Cities Program in that city was judged a failure "You can learn that money raises schools, but not minds; vanishes slums but not personal defeat; builds buildings, but not lives; paves streets, but not futures."

Engineers have to make value judgments in their profession that scientists don't—thus engineering, the social sciences and the humanities have much to speak to each other about. As a program director in NSF's earthquake hazard mitigation section put it, "you can't test social values on the shake table." You need the broader perspective.

Science and the humanities meet in archeo-astronomy (another new field) and in anthropology. They meet in architecture. In 1978, the National Science Foundation helped fund a meeting of science and humanities specialists on the Conservation of Historic Stone Building and Monuments. The experts covered everything from vibration analysis and microclimate modeling to graffiti. The report on their findings, published this year by the National Academy of Sciences, has become an important document in historic preservation. Incidentally, the University of Maryland has had an architecture school for 14 years now. It is in the College of Arts and Letters instead of Engineering—and the debate on the correctness of that decision, for Maryland continues.

We could go further, couldn't we—and talk about science and technology and the arts? For just as the computer is revolutionizing the ability of the writer to research his material, the synthesizer is changing the nature of music —placing the ability to compose as much in the machine as in the mind of the musician. And making films requires both artistic technique—and technological skill. For the truly practical education, I think we will see, in the future, greater lending of resources from one discipline to another, a wider exchange of faculty and a broadening in point of view. Like it or not, the merger of science and technology, the social sciences, and the arts and humanities, is here to stay.

Plenary Session V

FINANCING GRADUATE EDUCATION

Presiding: Thomas J. Linney, Jr., *Council of Graduate Schools*
Presenter: William Blakey, *Counsel,*
Committee on Education and Labor,
Subcommittee on Postsecondary Education,
U.S. House of Representatives
The National Climate: Legislation and Fiscal Restraint

At the podium is Thomas J. Linney, Jr., CGS, *presiding at the plenary session on Financing Graduate Education with presentations by (from left) Dwight H. Horch,* Educational Testing Service; *David R. Jones,* Vanderbilt University; *Karlene Dickey,* Stanford University; *Raymond B. Anderson,* Columbia University; *and William Blakey,* House Subcommittee on Postsecondary Education.

William Blakey

Good Morning! It is a personal pleasure for me to join the membership of the Council of Graduate Schools at your twenty-second annual meeting and to participate along with my distinguished colleagues on the panel in a dialogue about the key policy and financing issues affecting graduate education. I readily accepted Mike Pelczar's invitation to be with you because of the critical nature of the issues facing professional and graduate education *and* the importance that must be attached to developing a responsible and responsive strategy for addressing those issues.

At the outset, however, I want to assure you of Chairman Simon's continuing concern for the improvement in the quality of graduate education and the expansion of access to interim and terminal degrees for those persons unrepresented and underrepresented in all disciplines, but especially those connected to economic productivity, human resources development and national

security. He remains committed to expanding graduate educational and research opportunities.

I want to focus my remarks this morning on three principal areas: The Current Legislative and Budgetary Landscape, The Impact of the 1982 and 1984 Elections, and The Upcoming Reauthorization Process.

THE CURRENT LEGISLATIVE LANDSCAPE

Regardless of one's interpretation of the outcome of the 1982 elections—did Americans vote to stay the President's course, decide to abandon ship or simply elect a different crew to modify the course, under the same Captain—almost everyone agrees that a principal preoccupation of the 98th Congress will be reduction of the $150-200 billion deficit (depending on whose estimates you accept). In that context then, how will higher education programs, specifically Guaranteed Student Loans (GSL) and other loan programs benefiting graduate and professional school students (PLUS, NDSL, HEAL, HPSL, and Auxiliary Loans), the Graduate and Professional Opportunities Program, etc. fare in a "reduce the deficit climate"? Before attempting to answer the question, be aware of at least several other relevant considerations which could affect the attitude of the 98th Congress:

- The President's apparent steadfast refusal to modify his $1.6 trillion increase in the defense budget over five years, or almost $37 million an hour,
- The dollar impact of any congressional solution to the current short-term financing problems of Social Security, *which does not involve reducing benefits*, and
- The dollar impact of any jobs legislation which is not financed by a tax increase.

Higher education programs, especially GSLs, have fared very well in FY 1983 thus far. Despite one of the most devastating budget proposals from a sitting President, the outcry and collaborative effort of almost every segment of the higher education community resulted in not only preserving programs *in tact*, but almost restoring FY 1982 funding to the original FY 1981 levels. I remind you of these important victories in order to set the stage for what is to come.

First, the House FY 1983 Appropriations Committee bill (H.R. 7205) assumes the Administration's budget request for GSLs of $2,484.6 billion. This level can only be reached through enactment of the statutory modifications requested in their budget. Although this is unlikely, it does mean that a major supplemental appropriations bill will be required before the end of FY 1983—another possible vehicle for programmatic changes for the 1983-84 school year.

Second, the continuing Appropriations Legislation (P.L. 97-276) which ex-

pires on December 17, 1982 contains, for the first time, a provision placing restraints on the total size of federal lending and loan guarantee programs.[1] The latter would apply to GSL, PLUS, Auxiliary and other federally-guaranteed student loan programs. Although these new provisions pose a rather ominous threat, no known method of effecting these credit budget controls exists, without altering student eligibility criteria.[2] Importantly, the Student Loan Marketing Association (Sallie Mae) was specifically excluded from coverage of the new provisions.

Third, the President's FY 1984 education budget is likely to be just as much a horror show as it was in FY 1983. You must, of necessity, be more vigilant and skillful next year in your analysis and lobbying than you were this year.[3] Crying wolf will simply not suffice in repelling the Administration's attempt to reduce the federal higher education budget and student access to guaranteed loans. The Council of Graduate Schools will need to focus on the following in the 98th Congress:

- *Need for Continued GSLs for Graduate Students*—Given the perceived glut of lawyers, doctors, and dentists[4] and graduate students in the social sciences, humanities, etc., can the GSL for all eligible graduate students be defended? How?
- *High Cost of Educating Graduate and Professional School Students*—In 1981, $7.7 billion in GSL loans were made to all students, $2.2 billion of which went to 600,000 graduate and professional students. These students borrowed an average of $3,800 for the 1980-81 academic year. In addition, $245 million in NDSL funds and $43 million in College Work Study went to graduate and professional school students. Given the disproportionate allocation of GSL funds to graduate students, should graduate student access be limited by income, discipline, etc.?
- *Existence of a Viable Alternative*—Last year the Administration's proposal was fundamentally flawed since it would eliminate graduate students from the GSL program without providing an alternative.[5] The unsubsidized loan, available through the Auxiliary Loan program (which was theoretically available in 14 states), was operational in lending institutions in only three states. This year the Department can better defend the Auxiliary Loan program. Currently, 56 agencies are making Auxiliary Loans. Only Florida and Puerto Rico are still unable to make loans under the program. Recent information indicates that Auxiliary Loans will be available in those states by January 1983. For Fiscal Year 1982, $100 million was made available in loan capital through the Auxiliary Loan program.

If the Administration returns to Congress with a FY 1984 budget similar to the 1983 model—and there is every reason to believe they will—you will have to meet and defeat better opposition. The omnipresent budget deficit and changed conditions will make your job more difficult.

THE IMPACT OF THE 1982 AND 1984 ELECTIONS

The 1982 elections were not so important for the message every analyst/pundit/scribe seeks to divine from the November 2 results, but for a simpler, more important reason. Americans, in large numbers, returned to the ballot box to express their views and preferenees. The House and Senate elections sent the same message in two different ways. From my personal perspective, those voters who absented themselves from the electoral process in 1980 and those traditional Democratic voters who abandoned the party in 1980—forced the right swinging pendulum back to the center in 1982. In the critical U.S. Senate races, moderate Republicans involved in close races survived. This was in sharp contrast to the House results where moderate and conservative Republican Members were rejected by the voters. The mixed results could force a stalemate in the Congress or more likely a grid-lock between the executive and legislative branches.[8]

Several of the Senate's stellar Republican members barely escaped defeat. Senators Stafford, Chafee, Weicker, Durenberger and Danforth each received 51% of the votes cast in their respective states. A reversal of a total of 45,000 votes would have caused the defeat of all five. Importantly, the narrow victories are likely to impact their votes in the 98th Congress, especially on budget, appropriations and policy issues in which the Administration has a large stake. Even more important is the impact these close elections may have on the Senate Class of 1978,[9] which includes 19 Republicans (*eight* of whom could be described as moderate or progressive). My conclusion then is that a philosophical ideological majority favoring less defense spending, fewer reductions in domestic programs and adequate revenues to support federal spending may have control over the Senate in the next two years. It should not go unnoticed that both the Majority Leader *and* the Majority Whip will be standing for re-election in 1984.

In the House, the impact of the November 2nd results could be more dramatic. While the personalities were less notable than in 1980,[10] the message was nevertheless clear. Republican conservatives and moderates, 'yellow jackets' and 'gypsy moths', were all victimized in the centrist swing of the pendulum. It appears that proximity to the President was the insecticide that dealt most of the destruction to Republican hopes of increasing their numbers in the House. An analysis of the votes of 25 incumbent Republicans (and three Democrats) on six key education-related votes, demonstrates that all of the defeated Republican incumbents, except Dougherty (R-Pa) who voted "no" on Gramm-Latta II (The Omnibus Budget Reconciliation Act of 1981), voted with the President on the two key budget votes in 1981. These two key votes, which were perceived by the voters as tilting things too far to the right or as benefiting the wealthy at the expense of poor and middle-income Americans, appear to have been critical in the election. There were exceptions in many races such as local issues, personalities of the candidates and

unemployment. However, domestic spending concerns (e.g., Social Security, education, etc.) appear to have significantly affected electoral outcomes, especially in the races involving 14 freshmen Republicans.

The Subcommittee on Postsecondary Education will lose four of its members in the 98th Congress: Republican Representatives Arlen Erdahl (Minn.), Lawrence DeNardis (Ct.) and Wendell Bailey (Mo.). In addition, Representative Peter Peyser, a stalwart champion in the fight against student aid cuts, was victimized in redistricting and lost a tough campaign against a strong incumbent Republican.

The proverbial "bottom line" is that the improved Democratic majority (26 [illegible]) may have rendered the President's constructive majority in the House a nullity. The [illegible] vote majority which gave the President his victories on the budget and tax votes in 1981 have evaporated with the 26 member majority the Democrats will enjoy in the 98th Congress. As Roschwalb and Packer pointed out in their recent analysis:

> With [illegible] [illegible] the Republicans [illegible] [illegible] Republican liberals [illegible] [illegible] especially since they have broken with the President on recent votes and discovered that it [illegible] particularly when [illegible] But [illegible] the Republicans [illegible] without any breaking and the Boll Weevils [illegible] Democrats have [illegible] the President his [illegible] in the 98th Congress.

The change of attitude of many Republican members and some conservative Democrats was reflected in the veto override of the Supplemental Appropriations Act of 1982. The President has succeeded in making education funding a major political issue for the 1984 elections. Every major Democratic presidential candidate has staked out a public position in the education area. A recent poll underscores widespread public support for higher education.

REAUTHORIZATION OF THE HIGHER EDUCATION ACT OF 1965

[illegible] appropriations through fiscal year 1985 [illegible] Education Amendments of 1980 [illegible] programs funded in the [illegible] automatically extended for two fiscal years and [illegible] programs for one additional year.

The Subcommittee on Postsecondary Education will begin in July 1983 a [illegible]

trast to the 1980 Amendments, a comprehensive review and rewrite of the Act, the Subcommittee will build on that major effort by seeking to achieve the following objectives:

- maintaining the federal role and commitment to access, choice and quality in educational opportunities for low- and middle-income students;
- improving program availability and simplicity for students, parents and institutional personnel;
- reducing federal costs without shifting additional burdens to students, parents or the federal taxpayer; and
- reducing regulatory and cost burdens to postsecondary educational institutions while increasing program stability and availability to needy undergraduate and graduate students.

The National Commission on Student Financial Assistance [illegible] lead witness for the Subcommittee's initial fall hearings. The General Accounting Office [illegible] contribute to these initial hearings. This fact [illegible] background for writing the current law.

[illegible] Graduate Schools may wish to contribute to this [illegible] information about graduate education [illegible] More [illegible] options and the avail[illegible] recommendations.

[illegible]

FOOTNOTES

[illegible]

[illegible] Budget [illegible]

[illegible] Student Aid [illegible] National Journal [illegible]

[illegible] Higher Education, October 13, 198[illegible]

[illegible] and Needs: Graduate and Professional [illegible] applied for need-based financial aid [illegible] professional school in 1980-81. Educational [illegible] Service, April 198[illegible]

FY 1983 Budget [illegible] Education, March 1[illegible], 198[illegible], at 6.

[illegible] per cent of the electorate actually voted on November [illegible], 198[illegible]. This [illegible]

8 See *Newsweek*, 11-15-82 at 38

9 *Congressional Directory*, 1981, 97th Congress, Class II Senators Whose Terms of Service Expire in 1985, at 229

10 The 1982 Election Implications for Higher Education, J. Roschwalb and J. Packer, November 4, 1982 at 4

11 Group Attitudes Corp. conducted a study of 1,188 persons age 18 and above. The results were released on October 8, 1982 by representatives of eleven Washington based higher education associations. Among the principal findings were

- are extremely concerned about the rising costs of higher education,
- are worried about their own ability to pay for a college education for their children,
- Would like more [illegible] Federal and [illegible] students,
- tend to view higher education as a means of obtaining a good paying job rather than as a means of creating a better informed citizenry.

[illegible] and [illegible] of the [illegible] the National Commission on Student Financial Assistance, the Association of American Universities and others with respect to graduate students in the Guaranteed Student Loan program.

Special Session

GRADUATE PROGRAMS IN BIOMEDICAL SCIENCES

Presiding Jussi J. Saukkonen, *Thomas Jefferson University*
Establishment of New M.S. Programs in
Health Professions
Sheldon F. Gottlieb, *University of South Alabama*

Sheldon F. Gottlieb

The primary focus of this paper is to discuss factors that influence the development of new post baccalaureate programs in the health professions. As a result of the fact that we live in a status oriented society there are marked socioeconomic forces at work to "upgrade" occupations to the level of professions to enhance the quality of performance in a profession and to certify the new status with an advanced academic degree. To accommodate this socioeconomic demand the institutions of higher education may be coming under the abusive power of accrediting agencies associated with the professions.

In recent years one may readily get the impression that programming and the allocation of resources in a university are being determined more and more by pressures exerted by professional societies and their accrediting agencies than by sound planning within the university that is consistent with its mission.

The desire for degree based status is related partially to questions of entry-level qualification, especially into the health occupations and professions. The degree of didactic and or practical education required for entry into a health field has undergone a continuous evolution. As the perceived role of any health profession changes as a result either of scientific advances or greater degree of specialization, the degree of academic preparation for entry into the field is said to increase *pari passu*.

Specific examples of occupations and professions in which socioeconomic forces are at work to upgrade their status are the dental hygienists, nursing, pharmacy, pharmacy technician, physician assistants, occupational therapy, and nutrition. As an example of a health field wanting to upgrade itself, I will use physical therapy as a case study in which to demonstrate the possible abuse of power of an accrediting agency and how institutions may have to react to establish new post baccalaureate programs in the health professions as a result of such pressure.

In June 1979, the American Physical Therapy Association's (APTA) house of delegates adopted by resolution (RC 14-79) the policy that entry education for the physical therapist be that which results in the award of a post

baccalaureate degree. The resolution called for educational programs to comply with the policy by December 31, 1980. A prime reason for passing this resolution was to help implement the goal of having the physical therapy profession move towards professional autonomy.

Within the physical therapy profession, there is much discussion about the necessity of moving in the direction of a post baccalaureate degree as an entry-level requirement into the profession. As one dean of a college of allied health professions recently (Nov. 1982) wrote to the Council on Postsecondary Accreditation:

> The APTA has mandated post baccalaureate level degree as the entry level for physical therapy. This action was taken without input from educators, hospital administrators, other health care providers, and consumers. There is no doubt that this move was indeed a self serving step to further limit entry into the profession and to further increase earnings of physical therapists. In this regard, please note the following: No evidence exists that baccalaureate level physical therapists are providing anything less than optimum service. Therefore, what is the *real* justification for the post baccalaureate level mandate? Several independent studies have shown that the post baccalaureate level is unwarranted and will further increase costs to the patient.

Another dean of another school of [illegible] recently (Nov. 1982) wrote to the Council on Postsecondary Accreditation:

> They (APTA) have refused to spell out what they mean by 'post baccalaureate degree.' This position was taken without consultation with educational administrators and without consideration of the impact upon educational institutions.
>
> At the APTA national meeting in Phoenix, Arizona, in 1981, the question was asked, 'How will APTA enforce their stand on entry level credentials?' The answer, which came from the Board of Directors, was 'Through control of the accreditation process.'
>
> This dean [illegible]
>
> Because [illegible] entry level credential. [illegible]
>
> [illegible] governmental agencies [illegible] accrediting agencies of educational programs. You should such accrediting agencies can convince the Council on Postsecondary Education and governmental agencies of the correctness of their cause, they are then in a position to force educational institutions to comply with their edicts, founded or not. It then becomes incumbent upon the universities to decide either to implement these edicts or drop the programs.)

Before continuing with the case study, I need to digress to examine the relative relationships of several organizations in implementing programs and the criteria that must be met to ensure that academic programs meet the rigors of that elusive term, quality.

Governments have the responsibility and power to authorize occupational and professional agencies to: 1) define their activities, 2) specify the requisite academic credentials; 3) define degrees, and 4) require that certain degrees be required for professional practice.

Accrediting agencies or professional societies have a responsibility to define standards for quality in practice. These groups monitor the quality of education and of practice; they monitor education by evaluating the extent to which academic programs achieve their stated objectives by controlling accreditation, certification, and registration; they also monitor practical competency by setting standards, granting licenses, and by encouraging peer review.

To a certain extent there are possible areas of overlap and thereby areas of potential confrontation between these professional groups and government.

In contrast to the responsibility and authority of government and accrediting agencies, faculty have the responsibility and obligation to determine curricula and to recommend the awarding of degrees. However, the development of curricula may be taken out of the hands of the faculty by the demands and stringency of an accrediting or governmental agency.

Faculty have an additional responsibility, i.e., to engage in research that will generate new knowledge some of which may be used by governments, accrediting agencies, and even by the faculty to aid in determining responsible policies and requisite laws pertaining to the educational program and the occupation profession. The research function of faculty implies that there is a sufficient number of appropriately trained faculty to fill the new positions that will become available as a result of more stringent program requirements. The question of appropriately trained faculty is extremely important, since one of the tenets of academic life is that a person is not recommended for a degree unless the one recommending that person has one degree credential higher, or has at least the equivalent degree credential.

What can COGS or graduate deans do to help control "degree inflation" or the establishment of higher degrees which exceed the expectations necessary for educating a competent practitioner? What can COGS or graduate deans do to help control the quality of programs, or to help implement programs, even if the programs are not warranted?

Perhaps the questions should be not what COGS can do, but should COGS do? From my perspective it appears that COGS is powerless. As long as COGS is not directly involved in credentialing or accrediting, it has no direct control or direct influence on the development of new programs.

Very specific issues that must be addressed in order to evaluate proposed degree programs in the health professions and which must be considered by any responsible university to assure the quality of the program and the school

arship that will be generated by the program's faculty while implementing the programs are:

1. *Quality of patient care.* Each profession and institution must look at the issue of quality of patient care. Quality tends to be an ephemeral and ambigious term. Yet, one must ask if the current level of quality is sufficient and if increasing the entry level educational requirements will truly improve the quality of care.

   In the case of physical therapy, there are no data to indicate that the quality of baccalaureate level care is less than optimum, nor how increased post baccalaureate education for entry into the profession is going to improve materially the current quality of patient care.

2. *Need.* Need consists of two parts: societal and student demand. Societal need is based on a qualitative perception that there is a void that must be filled.

   Student demand need is how many students are demanding that a given program be made available.

   Before academic programs are introduced or drastically changed there should be a quantitative assessment of both the societal and student demand aspects of need.

   In physical therapy there appears to be no accurate assessment for the need for increasing entry level education to the post-baccalaureate level.

3. *Cost containment.* The effects on cost of services must not unnecessarily and adversely increase costs to patients. With respect to physical therapy, there is every reason to believe that post-baccalaureate entry level educational requirement will unnecessarily increase costs without providing significantly improved health care delivery.

   In the current hard economic times, society cannot afford to educate people to provide services that are not needed and demanded.

4. *Resources.* The level of degree offered should be consistent with the institutional resources. Resources that must be considered are: A. faculty personnel, B. facilities, C. library holdings, D. funding, the one resource on which all the others depend.

Of these four, faculty and funding are the two that I will focus on, which is not to imply that classroom, laboratory, or office space, or the need for library facilities and special equipment are to be minimized. Library holdings in the allied health areas, and particularly for physical therapy, are largely dependent upon the biomedical science holdings.

A. *Faculty Personnel.* With respect to the physical therapy program there is strong evidence to support the charge that an adequate number of qualified faculty are not available to meet the needs of a master's level program in all of the current physical therapy programs. Between 100-110 physical therapy programs in the United States would have to be upgraded. There are insufficient numbers of people on the master's, let alone the doctoral, level. A recent survey of the physical therapy pop-

ulation in the U.S. indicates that the distribution of individuals with respect to the highest degree earned is: no degree, 2.0%; bachelor's, 82.0%; master's, 15.0%; and doctorate, 1.0%.

Even APTA discusses filling the faculty needs of new programs by having their people trained in other disciplines. Unless the new faculty are to be trained in the cognate areas of physiology, biochemistry, psychology, pharmacology, engineering, or, in some cases, sociology, it is difficult to conceive how the profession will be upgraded by having their faculty trained in education or in the liberal arts. How will people trained in education, the most likely degree the faculty will pursue, upgrade the quality of graduate education in a health applied field such as physical therapy? How will they upgrade the quality of research that one hopes would be required by students and faculty? My remarks are in no way to be misconstrued with respect to the value of education or the liberal arts.

An [illegible] training to the health professions is usually clinically oriented. A recent survey indicated that approximately 75% of the physical therapists with bachelor's certificate or master's as entry level education have as their major responsibility direct patient care, 15-20% are involved in administration supervision. Of those with highest earned degree a bachelor's none are involved in research and only 1.0% with master's degrees report research as their major responsibility.

There are relatively few doctoral faculty in physical therapy, only 11.0% in research; 23.0%, 25.0%, and 36.0% in patient care, administration supervision, and teaching, respectively. Many of these individuals have the Ed.D., the non-dissertation degree. There are some former basic scientists currently teaching in various physical therapy programs.

Individuals who teach on the clinical level and who are not engaged in research or relevant scholarly activity have a difficult time meeting the usual academic standards for promotion, tenure, and retention, unless, of course, an institution sets different and less exacting standards for them and thereby either lowers standards throughout the institution or creates unneeded and essentially unsolvable problems among faculty. The fact that potential faculty will have difficulty in meeting academic standards may tend to discourage obtaining and retaining faculty.

Currently, most physical therapy programs are taught in an environment of little or no support for research or scholarly activity. This attitude and situation would need to change should post baccalaureate requirements for entry into the field become a reality.

B. *Funding.* Before spending valuable resources to establish expensive post baccalaureate programs both need and an increase in the quality

of patient care without significant cost increases to patients must be demonstrated.

C. *The Program*. The nature of the specific program is the main focus of any proposed post-baccalaureate course of study.

The problem with the nature of the program also underscores the conflict between what some people refer to as true graduate education and professional education that has been tied to the master's degree.

It is generally held that graduate education is designed to provide opportunity for individual creative achievement while contributing to the advancement of knowledge and gaining advanced and in-depth knowledge in a specialized area or field. These ends of graduate education are achieved by intellectual challenges, free inquiry, and independent investigation.

In contrast to "true" graduate education, designed to help train independent investigators, advanced professional training theoretically is designed to make better practitioners.

As yet it is not clear how post baccalaureate education in physical therapy is going to produce better practitioners.

It may well be that as a profession physical therapy will want and need to develop researchers. Currently it is not developing independent investigators to any significant extent. There are vast areas pertaining to practice that are in need of a theoretical base, and large areas in which good physiological, biochemical, nutritional, psychological, pharmacological and or engineering research could and should be done.

Indeed, there is a real need for some PT programs on the master's level, of which a few are in existence right now. There may even be a need for a few programs on the doctorate level. It is questionable, given the current realities, whether now is the time for all 100-110 physical therapy programs to convert to post-baccalaureate level virtually simultaneously and have the profession insist that the post baccalaureate be the entry level qualification.

Once post baccalaureate programs are in place, how long will it be before there will be pressures for the doctorate? Although the internal professional pressures are there for all the advanced degrees and increased status and financial reward accruing to the degree holder, there is the reality of increased costs to the public and the patients who are not even assured that the quality of their care will be improved.

Professional graduate education is often viewed as an extension of the undergraduate program, a few more courses to which graduate designations have been assigned. Unfortunately there is good precedence for this view. There is also the view that the last year of the baccalaureate program can become the first year of a master's program just by changing course designations.

The APTA has yet to define what they mean by post-baccalaureate education. The impression is they mean master's, but they have not developed, proposed, or even suggested a specific course of study.

One could argue that it is not the function of the professional society nor the accrediting agency to formulate programs since, theoretically, faculty traditionally make all recommendations regarding curricula and degrees. Yet, professional societies and accrediting agencies can control curricula through their control over the setting of standards of quality of practice, through their control over accreditation or certification or through their evaluations of academic programs and perhaps even through influence on state legislators.

However, without a specific definition of post baccalaureate education or what the final product of this education should be, how can faculty or anyone begin to devise a pertinent curriculum?

SPECIFIC RECOMMENDATIONS

1. [illegible] in conference with the Council on [illegible] Accreditation to request that APTA, for the foreseeable future, be required to continue to accredit baccalaureate programs.
2. Graduate deans should request that APTA develop [illegible] quantitative data to [illegible] their actions. Graduate deans will need such information to help sell the programs to the central administration and perhaps to state commissions of higher education.
3. Graduate deans have to work with physical therapy professionals [illegible] that post baccalaureate education for physical therapy [illegible] and if a definite need is shown, to develop an appropriate quality curriculum.
4. Graduate deans must insist on a quality program run by a quality faculty. I realize how difficult this task will be since no one wants to interfere with developing programs that could bring more money into the university. A reasonable graduate council would or could be very helpful in this regard.
5. Graduate deans will have to help initiate discussions on how to obtain and allocate scarce resources for the post baccalaureate education in physical therapy. The universities will have to decide whether they want to allocate the resources to [illegible] what impact allocation of resources to PT or any other health field has on other programs and whether this impact is tolerable and [illegible] desirable.
6. Graduate deans will have to work [illegible] and perhaps [illegible] with APTA to help identify personnel who could be appropriately trained and developed to serve as faculty for any advanced programs. For example, graduate deans could help bring faculty together from cognate areas such as physical medicine, occupational therapy, and rehabilitation programs to help teach in the advanced PT programs; this can be done more easily with PT programs housed in academic health centers. Graduate deans will have to work in concert with physical therapists to encourage their faculty to get advanced degrees in the basic sciences, or engineering, or other appropriate cognate fields.

7. Graduate deans will have to work with physical therapy faculty to help them define what constitutes an appropriate undergraduate major if entry level is to be the M.S.
8. Graduate deans will have to help initiate discussions on improving the intellectual and scholarly atmosphere currently existing in physical therapy departments by requiring active participation of their faculty and students in research or other relevant scholarly activity.

   So far, in my recommendations, I have placed emphasis on insisting on quality. If this effort on behalf of quality is not made, the public will lose confidence in these professions. The loss of public confidence is the last thing we in higher education, or in the health professions need. It is also the last thing that this country needs.
9. Universities, where necessary, may have to convince appropriate governmental bodies that it is undesirable and impractical to yield to unwarranted pressure exerted by professional societies and their accrediting agencies
10. My last recommendation is gratuitous, since I doubt whether it would become a reality. Perhaps the time has come for CGS to rethink its position about getting into the credentialing and accrediting business and thereby help control degree inflation and the proliferation of unnecessary and potentially low quality advanced degree programs.

At no time are any of my above remarks to be misconstrued to mean or imply that I am trying to prevent the growth, development, and/or evolution of any emerging discipline. I am suggesting that such growth has to have a rational basis and must be of the highest academic quality.

Report of The Council of Graduate Schools—Graduate Record Examinations Board 1982-1983 Survey of Graduate Enrollment

Part I

Bernard V. Khoury
Program Director, GRE
Educational Testing Service
December, 1982

INTRODUCTION

As a result of the difficulty of obtaining accurate information about graduate enrollments and particularly about trends in enrollments, the GRE Board and the Council of Graduate Schools began twelve years ago to conduct an annual series of surveys of enrollment of the membership of the Council of Graduate Schools in the United States. The Council membership consists of 370 graduate institutions which grant either the master's or doctorate as the highest degree. The members of the Council grant over 95% of the earned doctorates and 80% of the master's degrees awarded.

This year's survey, like those of previous years, is divided into two sections the first of which was distributed in the early fall of 1982 with a request that results be returned no later than October 25, 1982. This report provides the results of the first questionnaire mailing. The results of the second questionnaire mailing will be available in the spring of 1983.

In addition to graduate enrollments, this report provides information about applications for graduate study, availability of assistantships and fellowships, graduate degrees awarded, and stipends for teaching assistants.

SUMMARY OF CONCLUSIONS

The data reported in the twelfth year of this survey series appear quite useful in ascertaining short term trends in American graduate education.

Declines were reported in overall total enrollment and first time enrollments. Applications for admission to graduate schools increased at doctoral institutions but decreased at master's institutions. Numbers of graduate assistants showed a slight increase, and fellowships offered showed an overall decline except at public master's schools. There was a slight overall decrease in master's degrees except at private doctoral institutions where a small increase occurred. Doctoral degrees awarded decreased slightly.

*For reference purposes, this report is also issued as "CGS Communicator Special Report Volume XV, No. 11, December 1982."

Stipends paid to teaching assistants in Economics Departments increased by 6.2% between 1981 and 1982; in English Departments the reported increase was 6.5% and in Chemistry Departments stipends increased by 7.4% during the past year.

Specific data and comments on these conclusions are included in the following sections of this report.

Sample Description

Survey questionnaires were sent to each of the 370 graduate schools which are members of CGS. A total of 263 questionnaires were returned for a 71% response rate. Since the primary purpose of the questionnaire is to develop comparative data between 1981 and 1982, responses to questions were included in the analysis only when data were supplied for both years. Thus, the effective response rate per question will vary from a high of 71% for the overall sample to a low of 40% for the question concerning stipends for teaching assistants in Economics Departments. While this variability is to be expected, it does make comparisons across some questions of restricted value.

[illegible] CGS Sample and Base [illegible]

	Number of CGS Institutions	*Number of Reporting Institutions*	*% [illegible] population subgroup*
[illegible]			
Public	250	180	72%
Private	120	83	69%
Total	370	263	71%
Master's Highest Degree			
Public	85	51	60%
Private	23	14	61%
Subtotal	108	65	60%
Ph.D. Highest Degree			
Public	[illegible]	[illegible]	[illegible]
Private	[illegible]	[illegible]	[illegible]
Subtotal	262	198	[illegible]

[illegible] year [illegible] with published [illegible] last year [illegible] far as 1981 data reported in the current survey may differ from 1981 data reported last year for several reasons. First, although the questions and definitions remain essentially unchanged from last year's survey, the actual number of institutions responding in 1982 was not identical to those responding in 1981. Second, some institutions noted that the

data for 1982 which they were able to provide for this year's survey were different from, and better than, the 1981 data which they provided last year. Despite these limitations, the overall obtained sample (i.e., those submitting usable questionnaires on time) is highly representative of the total CGS population.

Comparisons of number and percentages of the available population and sample are shown on page 2. It should be noted that "Master's Highest Degree" refers, throughout this report, only to those institutions for which the master's degree is, in fact, the highest degree awarded. Data for these institutions do not reflect master's degrees offered by institutions which also offer the doctorate.

The percentages shown in the table on page 2 and in Tables 1 through 11 at the end of this report show response rate based on the number of institutions in CGS, e.g., the 263 institutions providing responses to this survey represent 71% of the CGS institutions and a 71% response rate is noted. Since the sample of institutions with usable data becomes less complete as the complexity of the questions or the difficulty of obtaining the data increase, the number of institutions providing usable data and the response rate that number represents are given for each question in the data presentation.

In addition, in order to provide an indication of the [illegible] these data the proportion of total CGS graduate school enrollment which the responding institutions represent are provided in a footnote to each table. Based upon the results of this year's survey combined with additional data from the *Graduate Programs and Admissions Manual*, one may estimate the 1982 total graduate school enrollment for CGS members at approximately 830,000. Using this estimate, it is then possible to report that the 263 institutions which responded to this year's survey represent a 71% response rate (based on percentage of CGS institutions) and also accounted for approximately 70% of the 1982 total graduate enrollment at CGS institutions. This latter figure is created by taking the 1982 total enrollment reported this year (583,638) and dividing by 830,000. For subsequent questions, a similar computation has been carried out, removing from the 583,638 the reported total graduate enrollment of each institution which failed to provide a usable response to the question.

[illegible] CS

[illegible] of [illegible] with [illegible] to [illegible] all parts of the question [illegible] the number represents of the total group or of the subgroup, the total number of students reported each year and the percentage change from 1981 to 1982. Most data are presented by public, private, and total. In addition, Tables 1 through 4 and Tables 9 through 11 also present data for institutions classified by means of the highest degree awarded. These categories are: Public-Master's Highest, Private-Master's Highest, Public-Doctorate Highest, and Private-Doctorate

Highest. This additional breakdown was not applied to other questions because it was not felt to be particularly important or because the differences were too small to affect the overall conclusions.

DISCUSSION

Table 1—Total enrollment again this year showed a slight overall decrease (1.1%). The largest decreases occurred at master's level institutions. Slight gains were reported at small doctoral institutions.

Table 2—First-time enrollments showed decreases at all types of institutions (4.5%) with the largest decreases occurring at the master's private (10.7%) and master's public (10.9%) institutions.

Table 3—Total applications for admission to graduate school showed an overall decrease at master's institutions (1.6%) while doctoral institutions reported a slight increase (0.1%).

Table 4—The number of graduate assistants (service required) continued to increase across all institutional types. The largest percentage increases in graduate assistants occurred at master's institutions.

Table 5—The total number of fellowships (no service required) showed a slight overall decrease of 0.4%. The largest decreases occurred at private master's institutions while public master's level institutions experienced the largest increase (19.3%).

Table 6—A very small increase occurred in the percentages of students enrolling full time at responding institutions.

Table 7—The total number of master's degrees awarded showed a slight overall decrease (1.0%). Moderate increases occurred at the larger private doctoral institutions while decreases were reported in most other categories.

Table 8—The total number of doctoral degrees awarded showed an overall decrease of 0.3%.

Table 9, 10, and 11—Recent surveys in this series have requested data regarding level of stipends paid to teaching assistants in English and Chemistry Departments. This year the same information was also requested for teaching assistants in an Economics Department. Any effort to determine the level of financial remuneration to teaching assistants invariably encounters a confusing array of institutional practices with respect to issues such as payment of tuition, variation across departments, variations by experience, taxability, tuition remission and hours of service. In response to continuing interest in such data about stipends and in an effort to make meaningful comparisons, institutions were requested to provide assistantship stipends for a "model" first-time teaching assistant who commits 20 hours per week to assistantship duties in an English Department, in an Economics Department, and in a Chemistry Department. Data received from responding institutions are summarized in Tables 9, 10, and 11.

Economics Departments—An overall increase of 6.2% was reported in sti-

pends paid to teaching assistants in Economics Departments between 1981 and 1982. The largest increases occurred at doctoral level institutions.

English Departments—The data indicate that teaching assistant stipends increased by about 6.5% between 1981 and 1982. Private institutions reported greater average percentage stipend increases than public institutions. Doctoral level departments reported greater increases than master's level departments in the stipends paid to teaching assistants.

Chemistry Departments—An overall increase of 7.4% was reported in stipends paid to teaching assistants in Chemistry Departments between 1981 and 1982. The largest increases occurred at private doctoral level institutions.

Because of variations in institutional practices regarding assistantships, caution should be exercised in using the average dollar values reported in the tables. Percentage changes in stipend levels, on the other hand, can reasonably be interpreted to reflect changes made by institutions in their stipend levels.

TABLE 1

Total Graduate School Enrollment by Type of Institution*

	Number	*%***	*1981*	*1982*	*% Change*
Master's Highest					
Public	50	59%	80,214	76,825	4.2% decrease
Private	14	61%	9,765	9,588	1.8% decrease
Total	64	59%	89,979	86,413	4.0% decrease
Ph.D. Highest					
Public	125	76%	374,493	374,196	0.1% decrease
Private	68	70%	125,859	123,029	2.2% decrease
Total	193	74%	500,352	497,225	0.6% decrease
Total Institutions					
Public	175	70%	454,	451,021	0.8% decrease
Private	82	68%	135, 4	132,617	2.2% decrease
Total	257	69%***	590,331	583,638	1.1% decrease

*For purposes of this survey, institutions were asked to include all students considered as registered in the graduate school, including education, engineering, social work, medical and business programs leading to MA, MS or Ph.D., Ed.D., or other doctorates.

**Percentage figures are the number of institutions responding to this question as a percentage of the number available in the total group. For example, 50 Public Master's Highest Degree institutions responded out of a possible 85 such institutions in the CGS membership for a 59% response rate for that group of institutions.

***Based on the computations described under Sample Description on page 169, the 257 institutions responding to this question represent 69% of the CGS institutions and accounted for approximately 70% of the 1982 total student enrollment at CGS institutions.

TABLE 2

First-Time Graduate Enrollment by Type of Institution

	Number	*%*	*1981*	*1982*	*% Change*
Master's Highest					
Public	40	47%	16,090	14,338	10.9% decrease
Private	11	48%	2,881	2,574	10.7% decrease
Sub-Total	51	47%	18,971	16,912	10.9% decrease
Ph.D. Highest					
Public	119	72%	93,357	90,385	3.2% decrease
Private	67	69%	33,817	32,316	4.4% decrease
Sub-Total	186	71%	127,174	122,701	3.5% decrease
Total Institutions					
Public	159	64%	109,447	104,723	4.3% decrease
Private	78	65%	36,698	34,890	4.9% decrease
Total	237	64%*	146,145	139,613	4.5% decrease

*Based on the computations described under Sample Descriptions on page 169, the 237 institutions responding to this question represent 64% of the CGS institutions and accounted for approximately 66% of the 1982 total student enrollment at CGS institutions.

TABLE 3

Number of Applications for Graduate Study

	Number	*%*	*1981*	*1982*	*% Change*
Master's Highest					
Public	42	49%	31,467	31,250	0.7% decrease
Private	11	48%	5,295	4,931	6.9% decrease
Sub-Total	53	49%	36,762	36,181	1.6% decrease
Ph.D. Highest					
Public	107	65%	283,446	285,192	0.6% increase
Private	65	67%	132,108	130,756	1.0% decrease
Sub-Total	172	66%	415,554	415,948	0.1% increase
Total Institution					
Public	149	60%	314,913	316,442	0.5% increase
Private	76	63%	137,403	135,687	1.2% decrease
Total	225	61%*	452,316	452,129	0.0% decrease

*Based on the computations described under Sample Description on page 169, the 225 institutions responding to this question represent 61% of the CGS institutions and accounted for approximately 62% of the 1982 total student enrollment at CGS institutions.

TABLE 4

Number of Graduate Assistants (Service Required)

	Number	*%*	*1981*	*1982*	*% Change*
Master's Highest					
Public	47	55%	3,890	4,065	4.5% increase
Private	12	52%	351	364	3.7% increase
Sub-Total	59	55%	4,241	4,429	4.4% increase
Ph.D. Highest					
Public	118	72%	85,318	86,334	1.2% increase
Private	63	65%	19,912	20,086	0.9% increase
Sub-Total	181	69%	105,230	106,420	1.1% increase
Total Institutions					
Public	165	66%	89,208	90,399	1.3% increase
Private	75	63%	20,263	20,450	0.9% increase
Total	240	65%*	109,471	110,849	1.3% increase

*Based on the computations described under Sample Description on page 169, the 240 institutions responding to this question represent 65% of the CGS institutions and accounted for approximately 63% of the 1982 total student enrollment at CGS institutions.

TABLE 5

Number of Graduate Fellows (No Service Required)

	Number	*%*	*1981*	*1982*	*% Change*
Public	157	63%	13,970	13,812	1.1% decrease
Private	69	58%	8,926	8,991	0.7% increase
Total	226	61%*	22,896	22,803	0.4% decrease

*Based on the computations described under Sample Description on page 169, the 226 institutions responding to this question represent 61% of the CGS institutions and accounted for approximately 58% of the 1982 total student enrollment at CGS institutions.

TABLE 6

*Full-Time—Part-Time** Total Enrollment*

	1981						*1982*			
	Number	*%*	*Full-time Number*	*%*	*Part-time Number*	*%*	*Full-time Number*	*%*	*Part-time Number*	*%*
Master's Highest	58	54%	16,050	19%	69,445	81%	15,830	19%	65,931	81%
Ph.D. Highest	181	69%	208,279	46%	248,262	54%	209,812	46%	243,660	54%
Total	239	65%***	224,329	41%	317,707	59%	225,642	42%	309,591	58%

**Institutions were directed to apply their own institutional definitions to "part-time" and "full-time."

***Based on the computations described under Sample Description on page 169, the 239 institutions responding to this question represent 65% of the CGS institutions and accounted for approximately 65% of the 1982 total student enrollment at CGS institutions.

TABLE 7

Number of Master's Degrees

	Number	*%*	*1980–81*	*1981–82*	*% Change*
Public	178	71%	103,727	102,137	1.5% decrease
Private	83	69%	33,993	34,264	0.8% increase
Total	261	71%*	137,720	136,401	1.0% decrease

*Based on the computations described under Sample Description on page 169, the 261 institutions responding to this question represent 71% of the CGS institutions and accounted for approximately 69% of the 1982 total student enrollment at CGS institutions.

TABLE 8

Number of Ph.D. Degrees

	Number	*%*	*1980–81*	*1981–82*	*% Change*
Public	128	78%	15,236	15,260	0.2% increase
Private	69	71%	6,076	5,982	1.5% decrease
Total	197	75%	21,312	21,242	0.3% decrease

*Based on the computations described under Sample Description on page 169, the 197 institutions responding to this question represent 75% of the CGS doctoral institutions.

TABLE 9

Stipends for Teaching Assistants in Economics Departments

	Number	*%*	*1981*	*1982*	*% Change*
Master's Highest					
Public	30	36%	$3,318	$3,445	3.8% increase
Private	4	17%	$2,500	$2,550	2.0% increase
Sub-Total	34	31%	$3,221	$3,340	3.7% increase
Ph.D. Highest					
Public	81	49%	$4,394	$4,707	7.1% increase
Private	33	34%	$4,017	$4,256	6.0% increase
Sub-Total	114	44%	$4,285	$4,576	7.0% increase
Total Institutions					
Public	111	44%	$4,103	$4,366	6.4% increase
Private	38	32%	$3,752	$3,964	5.7% increase
Sub-Total	149	40%	$4,014	$4,264	6.2% increase

These data are compiled from responses to the following question:

> Approximate net payment made in 9-10 months to a first-time teaching assistant working for 20 hours per week. Since the comparability across graduate schools of assistantship stipends may be influenced by tax status, experience, department, educational level, and tuition waivers, this question requests teaching assistant stipends for a "model" first-time graduate assistant. The reported stipend should be the payment for 9-10 months of effort, excluding any tuition and fees paid by the student or provided by the institution as part of the assistantship package, for a "model" first-time teaching assistant who commits 20 hours per week to assistantship duties in an Economics Department.

TABLE 10

Stipends for Teaching Assistants in English Departments

	Number	*%*	*1981*	*1982*	*% Change*
Master's Highest					
Public	43	51%	$3,445	$3,537	2.8% increase
Private	8	35%	$2,746	$2,940	7.1% increase
Sub-Total	51	47%	$3,336	$3,443	3.2% increase
Ph.D. Highest					
Public	109	66%	$4,303	$4,601	7.0% increase
Private	38	39%	$3,727	$4,070	9.2% increase
Sub-Total	147	56%	$4,154	$4,464	7.5% increase
Total Institutions					
Public	152	61%	$4,060	$4,300	6.0% increase
Private	46	38%	$3,556	$3,873	8.9% increase
Sub-Total	198	54%	$3,943	$4,201	6.5% increase

These data are complied from responses to the following question:

> Approximate net payment made in 9-10 months to a first-time teaching assistant working for 20 hours per week. Since the comparability across graduate schools of assistantship stipends may be influenced by tax status, experience, department, educational level, and tuition waivers, this question requests teaching assistant stipends for a "model" first-time graduate assistant. The reported stipend should be the payment for 9-10 months of effort, excluding any tuition and fees paid by the student or provided by the institution as part of the assistantship package, for a "model" first-time teaching assistant who commits 20 hours per week to assistantship duties in an English Department.

TABLE 11

Stipends for Teaching Assistants in Chemistry Departments

	Number	*%*	*1981*	*1982*	*% Change*
Master's Highest					
Public	38	45%	$4,142	$4,191	1.2% inerease
Private	6	26%	$3,030	$3,137	3.5% inerease
Sub-Total	44	41%	$3,577	$3,619	1.2% inerease
Ph.D. Highest					
Public	118	72%	$4,838	$5,213	7.8% inerease
Private	48	49%	$4,653	$5,165	11.0% inerease
Sub-Total	166	63%	$4,785	$5,199	8.7% inerease
Total Institutions					
Public	156	62%	$4,560	$4,843	6.2% inerease
Private	54	45%	$4,473	$4,940	10.4% inerease
Sub-Total	210	57%	$4,532	$4,868	7.4% inerease

These data are compiled from responses to the following question:

> Approximate net payment made in 9-10 months to a first-time teaching assistantship working for 20 hours per week. Since the comparability across graduate schools of assistantship stipends may be influenced by tax status, experience, department, educational level, and tuition waivers, this question requests teaching assistant stipends for a "model" first-time graduate assistant. The reported stipend should be the payment for 9-10 months of effort, excluding any tuition and fees paid by the student or provided by the institution as part of the assistantship package, for a "model" first-time teaching assistant who commits 20 hours per week to assistantship duties in a Chemistry Department.

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Executive Committee, 1983-1985

Leon W. Bonner (1984), Alabama A&M University
James J. Bynum (1983), Georgia Institute of Technology
Louis Castenell (1983), Xavier University of Louisiana
Hazel J. Garrison (1985), Hampton Institute
David R. Hager (1985), Old Dominion University
Edward W. Hawthorne (1983), Howard University
Thomas A. Langford (1985), Texas Tech University
Marion T. Loftin (1983), Mississippi State University
Carl D. Riggs (1985), University of South Florida
David S. Sparks (1984), University of Maryland Central Administration
Leslie M. Thompson (1984), Georgia Southern College
Bernard T. Young (1984) Angelo State University

Officers

Wimberly C. Royster, Past President, University of Kentucky
William H. Macmillan, President, University of Alabama
John J. Salley, Vice President, Virginia Commonwealth University
Arnold E. Schwartz, Secretary-Treasurer, Clemson University

Midwestern Association of Graduate Schools

Executive Committee 1982

Don H. Blount, Chairman, University of Missouri-Columbia
Laurine E. Fitzgerald, Past Chairman, University of Wisconsin-Oshkosh
Leo Solt, Vice Chairman, Indiana University
Spiro Peterson, Member-at-Large, Miami University
R. F. Kruh, Secretary-Treasurer, Kansas State University

Northeastern Association of Graduate Schools

Officers 1982

George S. Mumford, President, Tufts University
Robert B. Lawson, President-Elect, University of Vermont
Alison Casarett, Past President, Cornell University
Donald D. Fitts, Secretary-Treasurer, University of Pennsylvania
Paul R. Lyons, Member-at-Large, Frostburg State College
Eugene B. Piedmont, Member-at-Large, University of Massachusetts at Amherst
Charles W. Kim, Member-at-Large, State University of New York at Stony Brook
M. Catherine Butler, Member-at-Large, Brandeis University

Western Association of Graduate Schools

Officers 1982

James L. Clayton, President, University of Utah
Vivian A. Vidoli, President-Elect, California State University, Fresno
Reuben W. Smith, Past President, University of the Pacific
Lee B. Jones, Member-at-Large (2-year term) University of Arizona
Giles T. Brown, Member-at-Large (1-year term), California State University, Fullerton

The Constitution of the Council of Graduate Schools in the United States
(as revised January, 1983)

1. Name

This organization shall be called the Council of Graduate Schools in the United States, hereinafter referred to as the "Council."

2. Purpose

The Council is established to provide graduate schools in the United States with a comprehensive and widely representative body through which to counsel and act together.

Its purpose is the improvement and advancement of graduate education. The purview of the Council includes all matters germane to this purpose. The Council shall act to examine needs, ascertain best practices and procedures, and render assistance as indicated; it may initiate research for the furthering of the purpose. It shall provide a forum for the consideration of problems and their solutions, and in meetings, conferences, and publications shall define needs and seek means of satisfying them in the best interests of graduate education throughout the country. In this function the Council may act in accordance with the needs of the times and particular situations to disseminate to the public, to institutions, to foundations, to the federal, state, and local governments, and other groups whose interest or support is deemed of concern, information relating to the needs of graduate education and the best manner of satisfying them.

In the analysis of graduate education, in the indication of desirable revision and further development, in the representation of needs and all other functions related to effecting its purpose, the Council not only shall be free to act as an initiating body, but it shall assume direct obligation for so doing.

3. Membership

Membership in the Council of Graduate Schools in the United States shall be limited to two categories: Regular and Sustaining. All members shall be aware that the Council is devoted to excellence in graduate education as interpreted by occasional position statements outlining philosophies, policies, and procedures of graduate education. Applicants for membership shall display evidence as to qualifications in a form and as otherwise prescribed by the Council. All applications will be reviewed and evaluated by the Council's Membership Committee, which will bring its recommendations to the Executive Committee for action

A. Regular Membership. Institutions of higher education in the United States which are significantly engaged in graduate education, research, and scholarship, and the preparation of candidates for advanced degrees are eligible for R[illegible]. Applicant institutions must already have been appro[illegible] offer graduate work by the appropriate regional accrediting associat[illegible], and shall have awarded at least thirty master's degrees or ten doctoral degrees (or combination thereof) in at least three distinct and separate fields or disciplines within the three years immediately prior to the date of application. Applicant institutions must also have a formally organized administrative unit responsible for graduate affairs. Each application for membership shall contain evidence as to these qualifications in a form prescribed in the Bylaws.

B. Sustaining Membership. Both profit and nonprofit organizations such as research institutes; testing and evaluation corporations; philanthropic and charitable organizations; federal, regional and state agencies; public and private research and development corporations; and foreign and multi-national organizations are eligible for Sustaining Membership. Such organizations must recognize the value of quality graduate education across a broad range of scholarly, technological and creative endeavors. Through their participation and membership dues they help the Council carry out its central mission and purpose, while gaining access to its resources and activities.

Sustaining Members are encouraged to interact and communicate with Regular Members both informally and [illegible]mally. Sustaining Members may attend CGS meetings and [illegible]ored functions; however, they do not have voting rights nor [illegible]gible to hold elected CGS office.

They are listed in the annual CGS Directory and receive the same generally distributed information and material as Regular Members. Appropriate annual membership dues will be levied by the Council (see Article 11).

CGS neither endorses nor represents the interests of Sustaining Members, explicitly or implicitly.

Applications for Sustaining Membership shall be made in a form prescribed by the Bylaws. Each applicant will be considered by the Membership Committee in light of the Purpose (Article 2) of the Council.

4. Voting Power

In all activities of the Council, each regular member institution shall have one vote. More than one representative of any institution may attend the meeting of the Council, but the member's vote shall be cast by the individual designated as the principal representative of the member by the chief administrative officer of the member institution.

5. Officers and Board of Directors

The officers of the Council and the Board of Directors shall be a Chairman, a Chairman-Elect, and the immediate Past Chairman, each serving for a term of one year. In the absence of the Chairman, the Chairman-Elect shall be presiding officer of the Board of Directors and the Council.

There shall be a Board of Directors of twelve voting members, composed of the Chairman, the Chairman-Elect, the Past Chairman and nine members-at-large. Three members-at-large shall be elected annually by the members of the Council in the manner specified in Article 8 for terms of three years which begin immediately after the Annual Meeting.

The Chairman-Elect, chosen by the Board of Directors from its own past or present membership, shall serve in that capacity for one year. The following year, the Chairman-Elect will assume the office of Chairman, and the following year, the office of Past Chairman.

Each voting member of the Board of Directors must be the principal representative of an institutional member of the Council and none may serve for two consecutive full terms.

If the Chairman is unable to continue in office, the Chairman-Elect shall succeed immediately to the Chairmanship, and the Board of Directors shall choose a new Chairman-Elect.

Any vacancy occuring among the membership-at-large of the Board of Directors shall be filled in the manner specified in Article 8. In the interim, the position shall be filled by an appointee of the Board of Directors.

6. Executive Officers

The chief executive officer of the Council shall be a President, who shall be a salaried officer, appointed by the Board of Directors and serving at its pleasure. The President shall serve as an ex-officio member of the Board of Directors without a vote.

7. Duties and Powers of the Board of Directors

In addition to the duties and powers vested in the Board of Directors elsewhere in this Constitution, the Board of Directors may specifically employ such staff and establish such offices as may seem necessary; incorporate; undertake itself, or through its agents, to raise funds for the Council and to accept and expend monies for the Council; take initiative and act for the Council in all matters including matters of policy and public statement except where limited by this Constitution or by actions of the Council.

8. Committees

In addition to the Board of Directors, there shall be an Executive Committee of the Board of Directors, a Nominating Committee, a Committee on

Membership, whose members shall not be members of the Board of Directors, and such other standing committees as may be established by the Board of Directors.

Except for the Executive Committee and the Nominating Committee, all standing committees and ad hoc committees shall be appointed by the Chairman with the advice and consent of the Board of Directors. Committee membership shall be limited to regular members of the Council.

The Executive Committee shall consist of the Chairman, Past Chairman, and Chairman-Elect and two other Board members elected annually by the Board of Directors. The President of the Council shall be an ex-officio member of the Executive Committee.

To the extent determined by the Board, the Executive Committee shall have the authority of the Board in the management of the affairs of the Council in the intervals between meetings of the Board. The actions of the Executive Committee shall be reported at the next meeting of the Board of Directors.

The Nominating Committee shall consist of five new members each year of whom three shall be elected by the members of the Council. Two shall be members of the Board of Directors. The Chairman of the Committee shall be the Past Chairman of the Board. The one other Board member shall be elected by the Board from its members-at-large who shall be in the last year of their terms.

At least sixty-one days before each Annual Meeting of the Council, the Nominating Committee shall propose to the members of the Council two nominees for each member-at-large position of the Board of Directors to be filled including residual terms of vacated positions, and two nominees for each member-at-large position of the Nominating Committee. These nominations shall be made only after suggestions accompanied by supporting vitae have been solicited from the membership-at-large.

The election will then be held by mail ballot and the nominees receiving the larger number of votes for the positions to be filled shall be declared elected. In case of a tie vote, the Nominating Committee shall break the tie.

9. Meetings

The Council shall hold an Annual Meeting at a time and place determined by the Board of Directors. The Council may meet at other times on call of the Board of Directors.

The Board of Directors shall be responsible for the agenda for meetings of the Council. Reports and proposals to be submitted for action by the Council shall be filed with the Board of Directors before they may be submitted for general discussion by the Council. No legitimate report or proposal may be blocked from presentation to the Council, but action on any proposal may not be taken until the Board of Directors has had an opportunity to make a recommendation.

In matters not provided for in this Constitution, parliamentary procedure shall be governed by Robert's Rules of Order, Revised.

10. Limitation of Powers

No act of the Council shall be held to control the policy or line of action of any member institution.

11. Dues

Membership dues shall be proposed by the Board of Directors and must be approved by the majority of the membership after due notice.

12. Amendments

Amendments to this Constitution may be proposed by the Board of Directors or by written petition of one-third of the members. However they originate, proposals for amendments shall be received by the Board of Directors and forwarded with recommendations to the members, in writing, at least ninety days before the meeting at which they are to be voted upon or before formal submission to the members for a mail ballot. To be adopted, proposed amendments must receive the approval of a two-thirds majority of the members voting at the announced meeting or on the designated mail ballot.

13. Bylaws

Bylaws may be established by the Board of Directors at any regular or special meeting, subject to ratification by a simple majority vote of the Council at the next Annual Meeting.

BYLAWS

1. In conformity with Article 6 of the Constitution, the President of the Council of Graduate Schools in the United States shall be paid an annual salary to be determined by the Board of Directors plus such perquisites as may be necessary for the proper conduct of the office and such travel as may be deemed essential. The President is authorized to employ such staff as may be necessary for the proper conduct of the office, to establish accounts in the name of the Council of Graduate Schools in the United States, and to draw checks and invest monies against the Council's account or accounts, subject to an annual audit of the books of the Council by a Certified Public Accountant and approval by the Board of Directors.

2. Depositories for funds of the Council shall be designated by the Board of Directors.

3. In the event of the dissolution of the Council of Graduate Schools, all then existing assets of the Council shall be distributed in equal parts to the institutions which will at the time be members of the Council.

4. The fiscal year of the Council will correspond to the calendar year.

5. In the event of the death or disability of the President of the Council, the Chairman shall immediately call a meeting of the Board of Directors to select an Acting President, who shall assume the responsibilities of the President, as they are specified in Article 6 of the Constitution and in Bylaws 1 and 2, until the appointment of a new President.

6. Regular membership applicants responding to Section 3 of the Constitution are expected to furnish statements endorsed by the chief executive officer and the chief graduate officer of their institution. These statements should include information as to the following:
   a) The institution's accreditation for graduate work as determined by the appropriate regional accrediting association.
   b) The number of graduate degrees awarded in the three years immediately preceding the application for each applicable field or discipline in which graduate degrees are awarded.
   c) A general description of the criteria used in determining faculty participation in graduate programs, i.e., the level of training and the scholarly/creative productivity of the faculty members in the institution's graduate program.
   d) The degree of centrality of graduate education to the nature and purpose of the institution as evidenced by its budgetary commitment to graduate programs, the existence of special facilities or resources in specific support of graduate education, and, in the case of appointments, promotion and tenure, the degree of importance placed on faculty contributions to graduate and scholarly/creative work.
   e) The extent of the institution's acceptance of existing Council policy statements setting forth standards for the organization of graduate study.

7. Materials and information requested from the chief administrative officer of organizations applying for Sustaining Membership should include a statement of the aims and objectives of their organization; a statement of interest in graduate study; documentation of engagement in or commitment to research and development, creative expression, or the exploration of ideas; characterization of the educational level and achievements of the organization's professional staff; identification of affiliations with other associations or institutes relevant to graduate education; and a statement showing prior support of higher education.

Applicant organizations must have been in existence for a period of time sufficient to establish the above commitments.

Applicants agree to accept existing Council policy statements setting forth standards for graduate study and allied concerns.

8. A regional organization of graduate schools which becomes associated with the Council of Graduate Schools in the United States shall be known as a CGS affiliate. Eligibility for CGS affiliate status is limited to a) existing regional organizations of graduate schools or b) any such organizations subsequently established and having membership of at least 50 institutions. An eligible organization becomes a CGS affiliate upon approval by CGS's Board of Directors of a letter from a duly authorized officer at that organization stating its intent to become an affiliate. No fee is required to become a CGS affiliate. Formal participation of the regional associations in CGS shall be provided through the Board nomination and election process in such a way that a representative of at least one institution in each of the affiliated regional associations, who otherwise meet CGS's constitutional requirements for Board membership, is a member of the Board. One such member may then be designated by each affiliate as its liaison member, who shall have, as an extra responsibility beyond that of regular Board membership, to communicate information and views between the Board and the officers of the affiliate. (Alternatively, a regional organization which is an affiliate of the Council may designate as its liaison representative an individual who is not a Board member.) Such communication does not preclude direct communication between CGS and officers of the affiliates. A liaison member may or may not be an officer of the affiliate and is free to act on any Board decision independent of any position described by his or her affiliate. In determining any joint position held by CGS and its affiliates, the governing bodies of each must have adopted such a position through their own procedures. When agreement has been reached, CGS shall be able to declare a position held in common by CGS and its affiliates.

Section 10 of the Constitution of CGS shall apply to any such determination.

PROCEDURAL POLICIES

1. Annual meetings of the Council shall be held during or near the first week of December.
2. If a member resigns, it must reapply for admission in the normal way if it wishes to resume membership.
3. Institutions accepted to membership in any given year are required to pay prorated dues on a quarterly basis for that fiscal year.

Alphabetical Listing of Member Institutions

Abilene Christian University
Adelphi University
Air Force Institute of Technology
Alabama A&M University
Alfred University
*American University, The
Andrews University
Angelo State University
Appalachian State University
Arizona State University
Arkansas State University
Atlanta University
Auburn University
Austin Peay State University
Ball State University
Baylor College of Medicine
Baylor University
*Boston College
Boston University
Bowling Green State University
Bradley University
*Brandeis University
Bridgewater College
Brigham Young University
*Brown University
*Bryn Mawr College
*California Institute of Technology
California State College, Bakersfield
California State College, Stanislaus
California State College (Pa.)
California State Polytechnic University, Pomona
California State University, Fresno
California State University, Fullerton
California State University, Hayward
California State University, Long Beach
California State University, Los Angeles
California State University, Northridge
California State University, Sacramento
*Case Western Reserve University
*Catholic University of America
Central Michigan University
Central State University
Central Missouri State University
Central Washington University
Chicago State University
City College of the City University of New York
City University of New York
*Claremont Graduate School
*Clark University
Clarkson College of Technology
Clemson University
Cleveland State University
College of Notre Dame
College of Saint Rose
College of William and Mary
Colorado School of Mines
Colorado State University
*Columbia University
Coppin State College
*Cornell University
Creighton University
Dartmouth College
DePaul University
Drake University
Drexel University
*Duke University
Duquesne University
East Carolina University
East Tennessee State University
East Texas State University
Eastern Illinois University
Eastern Kentucky University

Eastern Michigan University
Eastern Washington University
*Emory University
Emporia State University
Fairleigh Dickinson University
Fitchburg State College
Florida A&M University
Florida Atlantic University
*Florida State University
*Fordham University
Fort Hays State University
Framingham State College
Gannon University
Gallaudet College
George Mason University
*George Washington University
*Georgetown University
*Georgia Institute of Technology
Georgia Southern College
Georgia State University
Governors State University
Hahnemann Medical College and Hospital
Hampton Institute
Hardin-Simmons University
*Harvard University
Hebrew Union College Jewish Institute of Religion
Hofstra University
Holy Names College
Howard University
Idaho State University
*Illinois Institute of Technology
Illinois State University
Indiana State University
Indiana University
*Indiana University of Pennsylvania
Iona College
*Iowa State University
Jackson State University
James Madison University
John Carroll University
*Johns Hopkins University, The
*Kansas State University
Kent State University
Lamar University
*Lehigh University
Loma Linda University
*Louisiana State University
Louisiana State University Medical Center, School of Graduate Studies
Loyola Marymount University
*Loyola University of Chicago
McNeese State University
Mankato State University
Marquette University
Marshall University
*Massachusetts Institute of Technology
Medical College of Georgia
Medical College of Pennsylvania
Medical College of Wisconsin, The
Medical University of South Carolina
Memphis State University
Miami University
*Michigan State University
Michigan Technological University
Middle Tennessee State University
Midwestern State University
Mississippi College
Mississippi State University
Montana State University
Montclair State College
Morehead State University
Morgan State University
Murray State University
Naval Postgraduate School
New Jersey Institute of Technology
New Mexico Institute of Mining and Technology
New Mexico State University
*New School for Social Research
New York Institute of Technology
New York Medical College
*New York University
Niagara University

North Carolina Agricultural and Technical State University
North Carolina Central University
*North Carolina State University at Raleigh
North Dakota State University
North Texas State University
Northeast Missouri State University
Northeastern Illinois University
Northeastern University
Northern Arizona University
Northern Illinois University
*Northwestern University
Northwestern State University of Louisiana
Nova University
Oakland University
*Ohio State University, The
Ohio University
*Oklahoma State University
Old Dominion University
*Oregon State University
*Pennsylvania State University, The
*Pepperdine University
Pittsburg State University
Polytechnic Institute of New York
*Princeton University
*Purdue University
Queens College of the City University of New York
*Rensselaer Polytechnic Institute
Rhode Island College
*Rice University
*Rockefeller University, The
Roosevelt University
*Rutgers—The State University
St. Bonaventure University
*St. John's University
*St. Louis University
St. Mary's University
Samford University
Sam Houston State University
San Diego State University
San Francisco State University
Sangamon State University
San Jose State University
Seattle University
Shippensburg State College
Sonoma State University
South Dakota School of Mines and Technology
South Dakota State University
Southeast Missouri State University
Southeastern Louisiana University
Southern Illinois University at Carbondale
Southern Illinois University at Edwardsville
Southern Methodist University
Southern University
Southwest Missouri State University
Southwest Texas State University
*Stanford University
State University of New York at Albany
State University of New York at Binghamton
*State University of New York at Buffalo
State University of New York—Downstate Medical Center
State University of New York at Stony Brook
State University of New York—Upstate Medical Center
Stephen F. Austin State University
Stetson University
Stevens Institute of Technology
*Syracuse University
*Temple University
Tennessee State University
Tennessee Technological University
*Texas A&M University
Texas Christian University
Texas Southern University
Texas Tech University
Texas Woman's University, The

Thomas Jefferson University
Towson State University
Trenton State College
Trinity University
Tufts University
*Tulane University
United States International University
University of Akron
*University of Alabama
University of Alabama in Birmingham
University of Alabama in Huntsville
University of Alaska
*University of Arizona
University of Arkansas
University of Arkansas at Little Rock
University of Baltimore
University of Bridgeport
*University of California, Berkeley
University of California, Davis
University of California, Irvine
University of California, Los Angeles
University of California, Riverside
University of California, San Diego
University of California, San Francisco
University of California, Santa Barbara
University of Central Florida
*University of Chicago
*University of Cincinnati
*University of Colorado
University of Connecticut
University of Dayton
*University of Delaware
*University of Denver
University of Detroit
University of the District of Columbia
University of Evansville
*University of Florida
University of Georgia
University of Hartford
University of Hawaii
University of Health Sciences, The Chicago Medical School
University of Houston
University of Idaho
University of Illinois at Chicago Circle
University of Illinois at The Medical Center
*University of Illinois at Urbana
*University of Iowa
*University of Kansas
*University of Kentucky
University of Louisville
University of Lowell
University of Maine at Orono
*University of Maryland
University of Maryland at Baltimore
University of Maryland, Baltimore County
University of Maryland College Park
University of Massachusetts at Amherst
University of Medicine and Dentistry of New Jersey—Graduate School of Biomedical Sciences
University of Miami
*University of Michigan
University of Minnesota
University of Mississippi
University of Missouri—Columbia
University of Missouri—Kansas City
University of Missouri—Rolla
University of Missouri—St. Louis
University of Montana
*University of Nebraska
University of Nebraska, Lincoln

University of Nevada--Las Vegas
University of Nevada--Reno
University of New Hampshire
University of New Haven
University of New Mexico
University of New Orleans
*University of North Carolina at Chapel Hill
University of North Carolina at Charlotte
University of North Carolina at Greensboro
*University of North Dakota
University of Northern Colorado
University of Northern Iowa
*University of Notre Dame
*University of Oklahoma
*University of Oregon
University of the Pacific
*University of Pennsylvania
*University of Pittsburgh
University of Rhode Island
*University of Rochester
University of San Francisco
University of Santa Clara
University of Scranton
University of South Alabama
University of South Carolina
University of South Dakota
University of South Florida
*University of Southern California
University of Southern Maine
*University of Southern Mississippi
University of Tennessee at Chattanooga
*University of Tennessee at Knoxville
University of Tennessee at Memphis
University of Tennessee Center for the Health Sciences
University of Texas at Arlington
*University of Texas at Austin
University of Texas at Dallas
University of Texas at El Paso
University of Texas at San Antonio
University of Texas at Tyler
University of Texas Graduate School of Biomedical Sciences at Galveston
University of Texas Graduate School of Biomedical Sciences at Houston
University of Texas Graduate School of Biomedical Sciences at San Antonio
University of Toledo
University of Tulsa
*University of Utah
University of Vermont
*University of Virginia
*University of Washington
*University of Wisconsin, Madison
University of Wisconsin, Milwaukee
University of Wisconsin, Oshkosh
University of Wisconsin, Stout
*University of Wyoming
Utah State University
*Vanderbilt University
Villanova University
Virginia Commonwealth University
*Virginia Polytechnic Institute and State University
Wake Forest University
*Washington State University
Washington University
Wayne State College
*Wayne State University
Wesleyan University
West Chester State College
West Texas State University
*West Virginia University
Western Carolina University
Western Illinois University
Western Kentucky University
Western Michigan University
Western State College of Colorado
*Western Washington University
Westfield State College

Wichita State University
Worcester Polytechnic Institute
Worcester State College
Wright State University
Xavier University
*Yale University
Yeshiva University
Youngstown State University

*Founding Institutions

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