The First Business of Our Times

A Report to the Advisory Commission for the Higher Education Study—State of Maine

Academy for Educational Development

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State of Maine

Prepared by a Consultant Panel appointed by
the Academy for Educational Development:

James A. McCain (Chairman)
Norman P. Auburn
Oliver C. Carmichael
Harold B. Gores
Lawrence L. Jarvie
Lester W. Nelson
Sidney G. Tickton

Study Director:
Rexford G. Moon, Jr.

September 30, 1966

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4995 Monaco Boulevard
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SIDNEY G. TICKTON

(Vice President and Treasurer)

Staff Director for various studies being conducted by the Academy for Educational Development; Member, Advisory Council, Denver Research Institute; Consultant, United States Treasury Department

Formerly Program Associate, Ford Foundation; Manager, Technical Services for Beardsley Ruml; Assistant Director of Research, Treasury Department

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Partner, Paul, Weiss, Rifkind, Wharton and Garrison (Attorneys at Law, New York City)

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JAMES O'BRIEN

Vice President and Director, Standard Oil Company of California

MEMBERS OF THE CONSULTANT PANEL

JAMES A. McCAIN
(Chairman)
President, Kansas State University
Formerly President, Montana State University

NORMAN P. AUBURN
President, University of Akron
Formerly Special Assistant for University Relations, Agency for International Development; Acting President, Council for Financial Aid to Education

OLIVER C. CARMICHAEL
Member of the Board of Higher Education in North Carolina
Formerly Chairman of the Board, State University of New York; President, Carnegie Foundation for the Advancement of Teaching; Chancellor, Vanderbilt University; President, University of Alabama

HAROLD B. GORES
President, Educational Facilities Laboratories
Formerly Superintendent of Schools, Newton, Massachusetts

LAWRENCE L. JARVIE
President, Fashion Institute of Technology
Formerly General Superintendent of Community Education, Flint, Michigan; President, New York City Community College; Executive Dean, Community Colleges and Technical Institutes, State University of New York

LESTER W. NELSON
Education Consultant, Academy for Educational Development
Formerly Associate Director, Education Program, Ford Foundation; Treasurer, Fund for the Advancement of Education

SIDNEY G. TICKTON
Vice President and Treasurer, Academy for Educational Development; Staff director for various studies being conducted by the Academy; Member, Advisory Council, Denver Research Institute; Consultant, Treasury Department
Formerly Program Associate, Education Program, Ford Foundation; Manager, Technical Services for Beardsley Ruml; Assistant Director of Research, United States Treasury Department

CONSULTANTS TO THE PANEL

(Each consultant was asked to examine only a specialized area of higher education in Maine and therefore the consultants are not responsible for the recommendations of the panel.)

JOSEPH ALLEN
Institutional Consultant and Consultant to the Duke Endowment
Formerly Secretary, Trustee Committee on Education, Alfred P. Sloan Foundation

WILLIAM S. FULLER
Director, Higher Education Facilities Planning, State Education Department, New York
Formerly, Director of the Bureau of Physical Facilities Studies, Indiana University; Specialist, Higher Education Facilities Planning, United States Office of Education

GEORGE H. HANFORD
Executive Vice President, College Entrance Examination Board

ROBERT E. KINSINGER
Director of the Division of Public Affairs and Education, W. K. Kellogg Foundation
Formerly Director, College Health Careers Project, State Education Department, New York

JEAN PAUL MATHER
Executive Vice President, University City Science Center
Formerly President, University of Massachusetts; Vice President, Purdue Research Foundation

EWALD B. NYQUIST
Deputy Commissioner of Education, State Education Department, New York

Study Director

REXFORD G. MOON, JR.
Director of Studies, Academy for Educational Development
Formerly Director, College Scholarship Service, College Entrance Examination Board

The Consultant Panel wishes to acknowledge the valuable advice and assistance received during the course of the study from the following:

JAMES C. MACCAMPBELL
University Librarian, University of Maine; President, Maine State Library Association

THE MAINE STATE NURSES' ASSOCIATION
Mrs. Josephine C. Philbrick, R.N., Executive Director

JOHN B. TRUSLOW, M.D.
Director, Study on the Feasibility of Establishing a Medical School in Maine for the Legislative Research Committee

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ACADEMY FOR EDUCATIONAL DEVELOPMENT, INC.
1180 AVENUE OF THE AMERICAS NEW YORK, NEW YORK 10036

September 30, 1966

Dr. James S. Coles, Chairman
Advisory Commission for the Higher
Education Study
1 College Street
Brunswick, Maine 04011

Dear Dr. Coles:

The Academy for Educational Development has completed the comprehensive study of higher education in Maine for which you made arrangements last January. As the Academy's Consultant Panel for this study, we are pleased to provide you with this report of our findings and recommendations.

The Academy's work, as you know, was carried out under contracts with the Advisory Commission for the Higher Education Study, with the State Board of Education, and the Maine State Commission for the Higher Education Facilities Act of 1963.

We have kept in mind in preparing this report that the Advisory Commission is expected to make recommendations to the 103rd Legislature concerning a master plan for higher education in Maine. It is our belief that Maine has much to gain from a more planned and coordinated approach to higher education in the future, and much to lose without such an approach.

In our judgment this seems to be an ideal time to effect the changes and obtain the renewed action we believe to be necessary to move higher education forward to new accomplishments in the state of Maine. Our belief that changes are needed and possible arises from our contacts

with many people in and outside the state of Maine; our optimism comes from the words of Governor Reed who said recently:

> "There can be no understatement of the importance of the role that education and an educated citizenry must play in Maine's economic future. Without an efficient educational system of elementary and secondary education and an adequate opportunity for higher education this state cannot expect to progress and improve its status, culturally, economically, or in any other way. . . . In fact, education actually is the first business of our times."

It is impossible for us to acknowledge personally all the enthusiastic help we received every place we turned, in and out of Maine, for facts and counsel. The college and university people, faculty and administrators alike, gave freely of their time and of their plans and hopes for the future, as did the principals of the state's public and private secondary schools. The people of Maine — the Governor and other political leaders, leaders of labor, industry and commerce, heads of organizations in many fields, and the heads of government departments — sought us out and were sought out. Their responses to our interviews and inquiries were most gratifying. For all this cooperation and extensive assistance we wish to express our appreciation and thanks.

The results of our study are presented in this report, to which is attached a number of volumes of supporting data in the form of consultants' reports and exhibits. While our assignment is complete, Maine's is not. Much remains to be done in the state of Maine if higher education is to meet the aspirations your citizens have expressed to us and to each other.

Sincerely,

James C. McCain (Chairman)
Norman P. Auburn
Oliver C. Carmichael
Harold B. Gores
Lawrence L. Jarvie
Lester W. Nelson
Sidney G. Tickton

SUMMARY

ALL over the country today higher education's future role is being defined and redefined as the need for its services and benefits becomes clearer. Dramatic changes are taking place in the methods of instruction and construction, in the forms of statewide organization, in the content of programs, in the types of institutions, and in the roles of government — state and Federal. Prompting these changes is the fact that the growth in knowledge has made us all the more conscious of how limited man's knowledge really is. There still is so much that man can do through higher education to better society and each individual's status in it.

The Consultant Panel believes that the people of the state of Maine desire the full range of benefits which a high quality, comprehensive system of higher education can offer. However, if Maine is to realize these benefits, new higher-education opportunities must be developed and existing ones greatly strengthened. In the Consultant Panel's judgment there is no more *urgent* matter requiring the immediate attention of the citizens of the state of Maine and the immediate action of the state's leaders than the development and improvement of higher education.

This report contains many suggestions and recommendations for the improvement of higher education in the state of Maine. While the educational and political leaders of Maine will have to determine the pace at which changes can be made, it is the Consultant Panel's judgment that these recommended changes should be implemented as soon as possible. The major recommendations are that:

1. The Maine State Legislature should adopt a comprehensive statement of public policy which assigns high priority in the allocation of funds and the passage of laws to the expansion and strengthening of public and private higher-education programs and institutions within the state of Maine.

2. The Board of Trustees of the University of Maine (enlarged to 15 members) should constitute the public body responsible for the development of policy with respect to the planning, coordination, and conduct of

all public higher education in the state of Maine. The primary responsibilities of the trustees should be:

a. the appointment of a president who should be the chief administrative officer for all public higher education;
b. the development and presentation of the operating and capital budget requests to the Governor and State Legislature;
c. the overseeing of all construction for public higher education; and
d. the development and publication of a master plan for all aspects of public higher education in the state of Maine.

3. The programs and facilities of the five state colleges, the four vocational-technical institutes, the Maine Maritime Academy, and all present and future branches and campuses of the University of Maine should constitute the public statewide system of higher education and be appropriately identified and administered as an integral part of the University of Maine.

4. The various campuses and branches under the proposed statewide University of Maine should be assigned program and service responsibilities as recommended in this report, including the identification of certain campuses as University Community Centers. These centers should be established in Portland, Auburn, Augusta, Bangor (Dow Campus), Fort Kent, and Machias, and they should provide a variety of terminal and transfer opportunities, offering certificates and associate degrees in vocational, technical, and general education for commuting students.

5. The necessary steps should be taken by the Governor and State Legislature to establish and support a Higher Education Development Authority to coordinate all Federal higher-education programs in Maine for which coordination is required and to administer all state higher-education programs to which all students or institutions — public and private — are expected to have access.

6. The higher-education institutions in the state of Maine should form an association (which might be known as the Maine Higher Education Association) for the purpose of promoting a variety of cooperative activities, services, and programs among the private institutions and between them and the proposed statewide University of Maine. Included among

its activities would be advising the State Legislature on the granting of new charters for private colleges.

7. The proposed statewide University of Maine and the private colleges in Maine should plan to accommodate on a full- or part-time basis, at least 55,400 students by 1975 and nearly 75,000 students by 1985 in a variety of one- and two-year terminal and transfer programs, in four-year baccalaureate-degree programs, in graduate and professional programs, and in special, extension, and continuing education programs.

8. The state of Maine should move to increase, by every available means, the number of young people who continue their education beyond high school. This may require heavy recruitment, special tracks, remedial work, and possibly, for a time, lower standards of admission to public institutions than many of the state's educators would like.

9. The proposed statewide University of Maine, which will be responsible for providing all public post-secondary education, should recognize that the state of Maine needs certain "basics" of higher education to which all of its citizens may expect ease of access, regardless of where they live or what financial resources they have. In developing its campuses and branches throughout the state, the university should plan to give special attention to providing quality programs in these areas of basic needs which include:

a. general academic programs which enable students to complete the first two years of college with associate degrees and transfer, if they desire, to a four-year program as a junior;

b. two-year technical programs offering associate degrees and one- and two-year vocational programs designed for employment in a great variety of areas — these should be quality programs which may lead to immediate employment or possibly carry some transfer credit to four-year programs;

c. remedial programs planned for "late bloomers," for underachievers, and for those who are ill-prepared (because of cultural, financial, or psychological reasons) which permit such students another opportunity to make up deficiencies and thus to qualify for admission to a transfer, technical, or vocational curriculum;

d. continuing or adult education programs which will enable adults to upgrade themselves culturally as well as occupationally; and

e. closely articulated counseling programs in the schools and colleges aimed at assisting students to match their study and occupational interests with their abilities and to pursue education to the limits which these may set.

10. In order to assure the highest quality of offerings in the future in vocational and technical education, the state of Maine should plan to develop in the secondary schools preparatory programs leading to admission to post-secondary vocational and technical programs in preference to establishing at this time a system of high-school level area vocational centers. The University of Maine should assist in the development of such programs for the schools and be responsible for all public post-secondary programs in vocational and technical education. To this end:

a. the university should create a division responsible for the development and administration of one- and two-year programs to carry on the necessary planning, the training of teachers for these programs, the essential research and development, and program-development liaison with secondary schools; policy-making for such programs should be the responsibility of the university's Board of Trustees or of a separate body reporting to the trustees; programs of technical and vocational education should have a distinct budget within the university's total budget; and

b. the centers, branches, and campuses of the university should develop curriculums balancing vocational, technical, and general education, leading either to the associate degree or to one- or two-year certificates of proficiency in specified fields; the programs should be sensitive to the state's economy, both traditional and developing, and to both general and special accreditation requirements; and each campus, center, or branch curriculum should be developed from recommendations of an advisory committee of persons drawn from labor, industry, business, education, and the university in the region being served.

11. The University of Maine should give special attention to expanding and strengthening program offerings at the graduate and professional level, planning to increase full- and part-time enrollment at this level at least 3.6 times during the next 10 years. In achieving the much-needed improvements in graduate and professional education the university should:

a. build on existing strengths in business, law, nursing, chemistry, forestry, physics, zoology, engineering, marine sciences, and education, bringing their support up to the levels now enjoyed by agriculture and the pulp and paper field;
b. add some additional graduate or professional programs in the humanities and the social and behavioral sciences including the fields of social work and United States-Canadian relations;
c. recognize in designing graduate programs that faculty in the public and many of the private higher-education institutions as well as business and industrial employees require and want graduate-education opportunities;
d. attempt to arrange cooperative programs and activities at the graduate and professional level with other higher-education institutions in Maine and throughout New England;
e. add several new faculty members who have recognized ability for teaching at the graduate level and for scholarly work, providing special financial arrangements where necessary;
f. provide higher compensation for professors and associate professors generally, as low salaries competitively at these two levels are a fundamental weakness at this time; and
g. establish a program of fellowships and assistantships which in number and amount will be competitive with those offered by the best universities in the country.

12. If the higher-education institutions are to make an appropriate contribution to the economic development of the state of Maine, efforts should be made to:

a. increase graduate and professional offerings especially in the southern part of the state (which might be the joint responsibility of the university and the private colleges) in fields

indispensable to the science-based industries for which there is considerable potential in this region;

b. make greater use of local business, labor, and industrial leaders in the development of needed new programs in vocational and technical education for which there are many program possibilities;

c. involve the higher-education institutions in the activities of the Department of Economic Development and other agencies, public and private, which are concerned with economic development in the state of Maine; and

d. greatly increase the amount, diversity, and quality of research done in the state of Maine, especially research which will aid in strengthening programs in graduate education, and research related to the economic conditions in Maine which should be aimed at strengthening those industries of the state with growth potential.

13. With respect to the need for increasing the amount, diversity, and quality of research in the state of Maine:

a. the University of Maine should establish a University Development Center for the purpose of coordinating existing and future research and service activities of its various departments, divisions, and schools (including administering Federal funds received by the university for development purposes) which are aimed primarily at serving the research and information needs of business, industry, and the professions in Maine;

b. a technoeconomic survey should be undertaken immediately of the feasibility of establishing an independent research and development center in the Portland area, which would include an investigation of industrial needs and available faculty resources; and,

c. because the University of Maine has resources and know-how in a number of fields useful in international development work, it should seek a modest number of overseas development assignments with every expectation that through such experiences the university's ability to serve the state's development needs will be enhanced.

14. The public and private higher-education institutions in the state of Maine should plan to improve, through various arrangements recommended in this report, the use of existing academic facilities and add additional facilities only after much better plans than now appear to exist are developed. Such plans should recognize that:

a. throughout the country today public institutions have achieved a much better use of space than is evidenced in public institutions in Maine today;
b. new construction techniques have made it possible to build and remodel academic facilities — classrooms, libraries, laboratories — so they can be rapidly adapted to new uses as needs change;
c. considerable savings to the taxpayers of Maine in future construction costs can be realized if, in the expansion of the proposed statewide University of Maine, the consolidation of facilities and programs recommended in this report for Portland and Gorham, for Bangor and Orono, and for Presque Isle are carried out;
d. there will be a large increase in Federal loan and grant funds during the next 10 years for construction purposes which the public and private higher-education institutions in Maine should make maximum use of in undertaking their needed expansion.

15. The University of Maine, in carrying out its enlarged responsibility for all public higher education, should oversee all public programs of teacher education under a statewide plan developed in cooperation with the Maine Teachers Association, the State Board of Education, the State Department of Education, and the private colleges following the detailed recommendations contained in this report.

16. The legislature of the state of Maine should, in the future, expect to make a proportionately higher commitment of state revenues to the support of public higher-education programs and related activities than has ever been the case in the past. This additional support will be required to meet adequately the future need in the statewide University of Maine for:

a. higher faculty salaries, especially for professors and associate professors;

b. the improvement of libraries;
c. strengthening and expanding graduate and professional educational opportunities and related research;
d. increased funds for research and other services in support of Maine's economic development;
e. strengthening and increasing the opportunities for post-secondary technical and vocational education;
f. improved administrative arrangements and increased planning activities; and
g. additional faculty, equipment, and other resources to accommodate the projected increase in enrollment in public higher education during the next 10 years.

17. Adequate public support will also be needed in Maine for scholarships, fellowships, and student loans; for the operation of the proposed Higher Education Development Authority; and for the matching of Federal funds for research, for education programs, for student aids, and for other service activities. A decision to broaden and improve public higher-education opportunities in the state of Maine and to develop and use the resources of higher education to further the cultural and economic growth of the state must be matched by a willingness at the highest levels in the state to provide the financial resources required. Only if the support is adequate can quality in these activities be assured.

INTRODUCTION

In 1947 skepticism greeted the suggestion of the President's Commission on Higher Education that at least 49 percent of the population was capable of at least two years of some kind of post-secondary education. Between then and now the reports of various other national groups and commissions (the 1957 White House Conference on Education, the 1960 President's Commission on Goals for America, the 1963 report of the National Policy Commission, to cite only three) have not only supported this earlier conclusion but stressed, for reasons of individual and national interest, the need for as much education as possible for more and more of the nation's young people.

By February, 1966, the need for higher education was universally acknowledged and no skepticism greeted the report by the President's National Commission on Technology, Automation, and Economic Progress, which said:

> "It is our firm conviction that educational opportunity should be open to all. . . . A nation-wide system of free public education through 2 years beyond high school should be established."

To be served by such a system, the commission said, would be high-school graduates, high-school dropouts, college transfers, and adults beyond the college age. In less than 25 years influential national bodies have moved from a position of simply citing the large potential for post-secondary education to recommending the essentialness of universal opportunity for higher education beyond high school.

Higher education isn't just being asked to provide more places for more students. Federal programs, while strengthening and enlarging programs and places, are also looking to higher education for new services — overseas development, basic research, and urban development. States are expecting their institutions of higher education to stimulate economic development, provide manpower training, and cultural progress. The nation's industries and business are looking increasingly hard

at the quality and quantity of educational services at all levels when decisions are made about the location of new plants or the expansion of existing ones.

The people of the state of Maine, as throughout the nation, want and have a right to expect a system of education which is responsive to social change and at the same time responsible for it; a system which meets needs and creates new ones; a system which both follows and leads; a system in which "access" will vary from restrictive to permissive; a system in which "substance" will range from the avocational to the professional and in which "kind" will range from the casual to the highly organized. This is a large order for higher education in the state of Maine, portending for the future many uncommon challenges which must be met rapidly and forcibly by uncommon solutions.

Higher education no longer has to fight for recognition. No longer is there a need to debate with businessmen about the relationship between higher education and work performance, or with politicians over the relationship of education to economic and cultural growth, or with parents over the material and intrinsic values of higher education for their children. Americans are sold on higher education. The big question is: can higher education produce? Can it achieve the diversity and flexibility required? Can it provide both the leadership and service the public expects and has a right to demand? Can it produce the kinds of people, and in the right numbers, who can cope with the growing divergence between man's technical ingenuity and his capacity to master the personal and social problems his ingenuity has created? The answer is simple: higher education must try.

Getting these things done won't be simple. The extent to which universal higher education — sometimes called "the great American experiment" — will be successful in the state of Maine will be determined largely by actions and decisions yet to be made. To be specific, unless there is more careful planning, more coordination, and more cooperation, and unless the necessity and appropriateness of more specialization can be accepted, the state of Maine could end up with a great many people enrolled in colleges, many dollars being spent on tuitions and salaries, and many buildings erected, but with only a small fraction of the higher education needed by the state and the youth of Maine.

In the state of Maine today there is general agreement among educators

and others that many aspects of higher education can and must be improved. There are few who would deny that every high-school graduate should have, through some further education, an opportunity to become all that he is capable of becoming. It is an accepted concept that higher-education opportunity should be widely distributed and adequately diversified. Most believe that the efficiency of higher education can be improved, and no one questions the prospect that the cost of maintaining higher education will be considerably higher in the future than it is today.

The decisions which have to be made on improvement, efficiency, opportunity, diversity and distribution, and financing are difficult, and views on how new educational goals can be accomplished vary widely. Many states, therefore, have developed or are developing statewide plans for higher education, setting forth goals and the steps to be taken to reach them, including the allocation of responsibility among the various institutions of higher education and government agencies.

While various studies which had implications for higher education have been made in the state of Maine over the years, no comprehensive appraisal of all higher education in the state has been undertaken since the survey of 1928. The 1928 study did not indicate, nor have subsequent specialized studies suggested, how the state should achieve results on the actions recommended. Higher education in the state of Maine has therefore developed without benefit of any statewide plan, and with varying degrees of coordination ranging from the onerous to the permissive.

The 102nd Legislature in creating the Advisory Commission recognized the situation when, calling for recommendations for a master plan for the development of all state public institutions of higher education, it said:

> "... It is mandatory that optimum use be made of all the state's public resources in higher education, and that the most informed and intelligent planning be made for coordination and expansion of these resources in the future, to the end that no qualified Maine youth be denied the opportunity for higher education."

The Consultant Panel observes that there are no set patterns as to what a master plan for higher education should or should not say, nor what it should or should not include. Each state must work out the type of plan best suited for its future, recognizing, of course, the historical develop-

ments, the existence of counterbalancing forces, and the practical realities of day-to-day educational and political life. The arguments are heated and numerous that planning and the coordinated action that should result from such planning only serve to create restraints upon both individuals and institutions — restraints which are incompatible with a democratic society. The experience in many states suggests, however, that in the absence of planning, the constraints on institutions have been excessive.

Legislators, educators, government budget officers, coordinating boards, governing boards, voluntary agencies, governors, and others who are concerned with the financing of higher education are beginning to believe that some continual appraisal of the higher-education system is both desirable and necessary in order to meet the problems of growth, finance, diversity in functions, and autonomy. Although a desire for order and efficiency may prompt much of the current interest in coordination and planning (as important as these reasons are), Dr. James B. Conant puts another reason in the forefront by saying:

> "When a state has no plan, no clear-cut idea in what direction its educational system should move, public officials are not compelled to take into account any criterion other than the power of each educational interest and to decide for themselves which programs are politically valuable and which are not."

The Consultant Panel believes that a master plan for higher education should have the following characteristics:

- It should be a dynamic and evolving document subject to change as education, social, and economic factors change and as times change.
- It should be flexible so that higher education can be improved in the future as well as substantially expanded.
- It should be firm so that guidance and leadership in higher education can be provided.
- It should take a long-term view, considering higher-education needs for at least a generation ahead.
- It should identify who should be responsible for getting things done.
- It should recognize that higher education is increasingly a public responsibility requiring larger long-range fiscal commitments by the state for capital and operating purposes.
- Above all, the plan should be manageable. A manageable and

workable master plan for higher education should be able to accomplish a great deal for the state of Maine, at a reasonable cost to the people of the state.

That the nation experiences uncertainties today about the future of higher education is a measure of the maturity, of the responsiveness, and of the increasing universal character of higher education. Society generally is uncertain about its future. In the year 1966 only a static system of higher education would know exactly what to do about the future. The next decade is both more important and more problematical than any ten-year span in our nation's history. Higher education in the state of Maine is surrounded with high aspirations and an unbelievable number of alternatives for action in meeting these aspirations. Choices must be made. If the people in charge of higher education in the state of Maine are willing to undertake more planning, to accept more coordination, to engage in more cooperation and specialization of function, many alternatives can be investigated and many aspirations can be satisfied.

The remainder of this report consists of comments and recommendations which the Consultant Panel believes should provide the basis for the development of a master plan for higher education in the state of Maine. If, in the opinion of the Advisory Commission, recommendations are required on subjects not covered in this report, the Consultant Panel will provide whatever additional help may be needed. The panel will consider its assignment completed only when the Advisory Commission has available our best judgment on all higher-education matters in which members of the panel are competent.

PUBLIC POLICY ON HIGHER EDUCATION

Few state constitutions in this country were written, or have been rewritten or amended, to recognize either the importance of, or the public's responsibility for, providing higher education. Most state constitutions acknowledge the public responsibility for elementary and secondary education; some comment on the education of teachers. But public policy regarding higher education in most states has emerged from actions of the colleges and universities themselves, legislatures, and governors. Rarely have the various acts and orders been codified or reevaluated as they relate to higher education. Rarely have actions concerning higher education resulted from other than immediate considerations and constituency pressures.

A higher-education master plan should function as a detailed description of public policy. The plan should evolve from the needs as seen by many, should be formulated to guide the state and its higher-education institutions in decision-making, and, more importantly, should give the people the assurance that their state is interested in, indeed committed to, the furtherance of higher-education opportunities for all its citizens.

Master plans should be flexible. It is a matter of debate as to whether a legislature should adopt a complete master plan, especially a new one. Certainly legislative action may be required to implement certain phases of a plan but not the whole plan. A legislature can, however, adopt a statement of public policy on higher education which would be of great benefit to all parties concerned with education beyond high school.

The Consultant Panel believes that the State Legislature of Maine should be encouraged to adopt a statement of public policy on higher education in lieu of legislating a master plan at this time. With respect to such a policy the Consultant Panel recommends the following:

It shall be the goal of the state of Maine to provide through all means available to it an opportunity for every citizen to obtain higher education commensurate with his ability and interests and without regard to his

race, creed, color, national origin, religion, or financial circumstances.

With respect to this goal it shall be the public policy of the state of Maine to:

1. Recognize higher education as any organized program of instruction or research, primarily concerned with a field of organized knowledge, related theory, and associated practice, which is administered by a collegiate institution authorized to award academic degrees, and systematically pursued on a full-time or part-time basis by persons who have completed secondary school or who demonstrate equivalent competence through appropriate means.

2. Support the principles that each higher-education institution in the state of Maine — public and private — shall have control over its education program and related activities within its board of control, and that its faculty shall enjoy the freedom traditionally accorded higher-education institutions in teaching, research, and expression of opinions.

3. Develop, maintain, and support a structure of public higher education in the state of Maine which will assure the most cohesive system possible for planning, action, and service in providing higher-education opportunities, to which the highest priority for fiscal support is assigned.

4. Provide in its public higher-education institutions, or through cooperative arrangements with private institutions or institutions outside the state, the programs of study, research, or experimentation that its citizens may desire or require.

5. Encourage the growth and development of existing or new private higher-education institutions within its borders and contract, where appropriate, with these institutions for services needed by the state.

6. Recognize that all citizens of Maine shall be considered eligible for the benefits of higher education whether they are high-school graduates or the equivalent, school dropouts, or adults seeking retraining or training for new careers.

7. Assign continually a high priority in the allocation of public funds to the development of services, programs, and institutions designed to

provide opportunities for those who do not now share equitably in the advantages of higher education, because of limiting economic, social, educational, and cultural factors.

8. Support financially the programs of its public higher-education institutions through appropriations, grants, and loans, based on comprehensive plans and budgets, both short-term and long-term; and expect appropriate public accountability for such support at the end of the year during which the funds were spent.

9. Encourage all its institutions — public and private — to make maximum use of Federal funds available for the support of higher-education programs and activities. In support of this policy, the state of Maine will modify existing restrictive laws, create appropriate agencies, and provide matching funds, initially and on a continuing basis.

10. Expect and request cooperative undertakings among the higher-education institutions — public and private — and between them and the business, industrial, and labor interests of the state in order to further the development of quality and quantity in educational programs and services and the advancement of the state's economy.

11. Encourage through financial support and the expectation of annual reporting a continuing program of evaluation and research with respect to higher-education opportunities in the state of Maine.

12. Give through legislative actions and appropriate publicity a high priority to the provisions of the master plan for higher education as these are stated and revised from time to time by responsible educational and governmental authorities.

These principles describe a basic public policy for a state which is expecting higher education to contribute significantly to the state's future progress and prosperity. Today, neither the Consultant Panel nor anyone in the state of Maine knows whether these principles are in conflict with existing state laws. The existing codification of state laws related to higher education should be expanded to include all private and special laws dealing with various institutions and any other laws which have a direct or indirect relationship to providing higher education. If there are conflicts, they should be resolved.

ORGANIZATION AND STRUCTURE

THE signs of stress and the evidence of inequities in the structure and organization of higher education in Maine are widely recognized and are freely discussed by educators, government, business, and civic leaders, and the press. The more frequently mentioned are the low rate of college attendance, the lack of accreditation of many of the public and private colleges, the high out-migration of students for college and following college, the duplication of program offerings, the lack of communication and cooperation among the public institutions and between them and the private colleges, limitations in graduate and professional offerings, and line budgeting by the Governor and the State Legislature for the majority of the public institutions. These well-founded concerns cannot be dismissed lightly. To varying degrees similar concerns exist in every state, but in the state of Maine these are problems which have reached serious proportions because of the lack of an effective arrangement for the coordination of higher education.

At the present time the organization and structure of higher education in the state of Maine consists of the following components:

1. The University of Maine, with campuses in Orono and Portland, is both the land-grant college and state university. It is the only university in the state and is controlled by an 11-member Board of Trustees, 10 of whom are appointed by the Governor. The university has, or is in the process of establishing, experimental centers in Augusta, Auburn, Rockland, York, Presque Isle, and Brunswick, offering full-time freshman programs transferable to the Orono or the Portland campuses. The university offers a wide range of undergraduate-baccalaureate and some associate-degree programs, enrolls nearly 50 per cent of the full- and part-time students in higher education in the state of Maine.[1] It awards over 65 per cent of the master's degrees in the state, is the only institution in the state

[1]Enrollment figures for all higher-education institutions in the state of Maine appear on page 45.

giving the Ph.D., and provides virtually all of the continuing education in the state of Maine.

2. The five state colleges, controlled by the State Board of Education. Well-dispersed geographically, these institutions were formerly state teacher colleges. Only two are regionally accredited. While these institutions are primarily teacher-education institutions they have been authorized by the State Board of Education to develop liberal-arts programs as resources permit. Each provides general teacher preparation for the elementary and junior high school grades and one or more specialities in teacher education (French, Fort Kent; Industrial Arts, Kindergarten, and Art and Music, Gorham; Home Economics and Special Education, Farmington; Business Education, Machias; Physical Education, Presque Isle). Gorham and Farmington also provide programs for the preparation of secondary-school teachers. The state colleges currently enroll about 13 per cent of the full- and part-time students. They aspire to offer work for future secondary-school teachers and to give depth and breadth to their programs in the liberal arts. At the present time these institutions are subject to a great deal of control by various departments of state government and the State Board of Education; three are too weak in faculty, laboratory, and library resources to undertake significant work in the liberal arts or in secondary-school teacher preparation.

3. The four vocational-technical institutes (one in existence since 1946, the others only recently established) are located in Auburn, Bangor, Presque Isle, and South Portland, and offer a variety of occupationally related, nondegree, one- and two-year programs for high-school graduates, as well as some part-time programs for employees of local industrial firms. These institutions are also controlled by the State Board of Education and do not have regional accreditation as either technical institutes or community colleges. With few exceptions, their current programs are similar to those offered at the high-school level in other states. Currently the vocational-technical institutes enroll 5 per cent of the full- and part-time students in higher education in the state of Maine.

4. The Maine Maritime Academy offers a four-year Bachelor of Science program for persons seeking career positions in the United States Merchant Marine. Controlled by a 12-member Board of Trustees appointed by the Governor, the Academy was recently converted into a four-

year institution. It enrolls about 2 per cent of the students in higher education in the state of Maine. The Academy's library resources are limited and its program and faculty are highly specialized. It is not regionally accredited as either a two- or four-year higher-education institution but has been recognized as a candidate for accreditation by the New England Association of Colleges and Secondary Schools.

5. The 14 private two- and four-year higher-education institutions — primarily residential institutions and controlled by their respective Boards of Trustees — enroll a total of about 6,000 full-time students, 70 per cent of whom come from outside of Maine. Included are two theological schools with small enrollments; three junior colleges; one small conservatory of music; and eight four-year colleges offering bachelor's degrees in a variety of fields in the arts, the humanities, the social behavior and physical sciences, business, and education. Only six of Maine's two- and four-year private colleges are regionally accredited; three, however — Bates, Bowdoin, and Colby — are among the most selective, strongest, and best-known colleges in the United States. The private institutions are high in cost to the student, contemplate considerable fee increases during the next 10 years, and expect to draw at least the present or an increasing percentage of their students from outside of Maine.

6. Private groups in two communities — Fort Kent and Unity — have announced they will operate four-year private liberal-arts institutions starting in the fall of 1966. In two other communities — Camden and Ogunquit — private groups are studying the establishment of similar institutions. The future of these activities is unknown at the present time.

7. The New England Board of Higher Education is an interstate compact, under which students from all New England states may enroll in certain programs in state universities in other than their own state at the instate tuition rate. In 1965-1966, 51 Maine students were attending institutions in Vermont, New Hampshire, Connecticut, Massachusetts, and Rhode Island under New England Board auspices for programs in Medicine (under contract), Industrial Education, Pharmacy, Physical Therapy, Speech Therapy, Food Technology, Art Education, Occupational Therapy, and Dental Hygiene. In 1965-1966, 31 students from other New England states attended the University of Maine under the board's program. These students were studying Agricultural Engineering, Chemical

Engineering, Forestry, Law, Public Management, and Pulp and Paper Management.

The New England Board of Higher Education could become a more potent force in New England higher education in the future if some of its present plans develop. However, there was an 8 per cent decline last year in total compact enrollment throughout the New England area. Two new areas where plans are well advanced are in continuing education and in the training of social workers; study is also being given to regional activities with respect to community-college development in New England.

8. The New England Regional Center for Continuing Education (the first interuniversity interstate cooperative effort of its kind), is in the process of being built at the University of New Hampshire with major assistance from the W. K. Kellogg Foundation for construction and for the development of experimental programs by the six public universities in New England. A prominent facet of the programing will be an "Atlantic Community Studies Program" aimed at acquainting American opinion leaders with ways of creating better relations between Europe, Canada, and the United States. Program responsibilities accepted by the six universities include programs in the visual and performing arts (University of Connecticut); programs to stimulate cooperative approaches to the development, conservation, and effective use of New England's economic, natural, and human resources and the development of closer economic and international trade ties between the six states and the Canadian provinces (University of Maine); programs of education for and service to the aging (University of Rhode Island); programs in continuing medical education (University of Vermont); and an interdisciplinary, interinstitutional graduate program in adult education (University of New Hampshire).

The Consultant Panel believes that both the quality and the quantity of higher education in the state of Maine falls short of standards for today, tomorrow, and the long-run future. The evidence suggests that the state of Maine — already heavily dependent upon public institutions and certain to be more so in the future — should take steps now to achieve a more cohesive and flexible system of public higher education; one which can respond rapidly, broadly, and decisively to the changing educational and social challenges of the future; one which will be recognized for its

unity, its identity, and its excellence. Needed, the Consultant Panel feels, is a system which will:

- Provide diversified educational opportunities for people of varying abilities, interests, and needs close to the centers of population in a minimum of institutions.
- Offer uniformly high quality educational programs which will stretch the capacities of the gifted and make increasing demands on the talents of the great diversity of students who must be served in the future.
- Be recognized as offering intellectually directed educational opportunities at the undergraduate and graduate levels and in research which will advance, hold, and attract top faculty and researchers to help the state of Maine overcome its educational deficit and increase its economic and industrial potential.
- Assure flexibility in program arrangements permitting greater student transfer and movement within the system for graduate and undergraduate students alike.
- Play an aggressive and decisive role in meeting the needs of business, industry, government, and society for trained personnel and services of all kinds.

Because the problems are large and the opportunities are many, because the urgency for immediate action is great, and because large sums of public money will be involved, there is a need in Maine for a single center of responsibility for public higher education. The divided authority, the wide range of standards, and the duplication of efforts which now exist cannot be expected to provide Maine with the kind of higher-education development and leadership necessary for the future.

The Consultant Panel believes that the higher-education needs in the state of Maine can be met most effectively and rapidly, and at the most reasonable cost to the taxpayers of the state of Maine, and to the maximum benefit of the state's educationally-starved population, if a single unified system of public higher education is established. Therefore, the Consultant Panel recommends that:

1. The Governor and the State Legislature should take such steps and actions as are necessary to incorporate all existing public higher-education institutions in the state of Maine, including the university, the five state colleges, the four vocational-technical institutes, the Maritime

Academy, and any branches, campuses, or schools maintained by these institutions and any future public higher-education institutions which might be established, into a statewide university system under the name and authority of the University of Maine.

2. The Board of Trustees of the University of Maine should constitute the public body responsible for the development of policy with respect to the planning and coordination of all public higher education in the state of Maine. The present board should be enlarged to 15 members in recognition of the broader statewide responsibilities which must be undertaken by an enlarged University of Maine. Fourteen of the trustees should be appointed by the Governor to serve seven-year overlapping terms. The Commissioner of Education should serve ex officio.

3. The Board of Trustees of the University of Maine should have sole authority to appoint the president of the university, who should serve at the pleasure of the board and be the chief administrative and education officer for the University of Maine. The president should appoint the persons to head the various campuses, branches, programs, and divisions established as part of the University of Maine.

4. All separate campuses, centers, or branches should be appropriately designated as being part of the University of Maine; the chief administrators should report to the president and should have the title of chancellor, provost, or dean, depending on the type and size of institution over which each presides. All faculty and staff in branches, campuses, divisions, programs, and centers should be considered members of the faculty of the University of Maine.

5. A council, with the president as chairman, should be formed of the administrative heads of the branches and campuses for the purpose of insuring regular and close coordination of programs, activities, and planning. In formulating its various policies, the council may be expected to make extensive use of *ad hoc* statewide university committees of faculty and administrators, as well as representatives of the general public.

6. The Board of Trustees of the University of Maine, on the recommendation of and in consultation with the president of the university, should also be responsible for:

a. developing and putting into effect a master plan for the University of Maine, incorporating from this report such recommendations as pertain to the university and providing for the regular revision of this plan as may be required by changing conditions;
b. approving the operating budget of the University of Maine and transmitting it directly to the Governor and the State Legislature for their consideration and action;
c. representing all branches, campuses, and divisions of the university before the Governor, the Governor's Council, and the State Legislature in explaining and justifying all appropriation requests;
d. evaluating and approving proposals for new or expanded educational, research, and public-service programs for the university, and encouraging programs and activities to further the conduct of research and the introduction of modern technology;
e. evaluating and approving proposals for all new campuses, centers, and branches, and making recommendations to the Governor and the State Legislature with respect to these needs;
f. developing arrangements for a division of the responsibility among the university's various campuses, branches, and centers, for specialized graduate and professional programs and university-based research;
g. developing arrangements within the university system for the sharing of facilities — libraries, laboratories, and other resources — where feasible as an alternative to duplicating various types of facilities;
h. providing for the establishment of standards and over-all coordination on a statewide basis of offcampus programs of extension and continuing education;
i. establishing the priorities for the physical-plant development of the university and seek directly from the Governor and the State Legislature appropriations for planning, building, and land acquisitions, and oversee all construction at the various branches, campuses, and centers of the university; and
j. reporting annually to the Governor, the State Legislature, and to the people of Maine on its plans and accomplishments in-

cluding a complete fiscal accounting of its operations where both public and private funds are involved.

In making these recommendations, we are not insensitive to the changes in the state of Maine required for their implementation. Many persons of good will and high ability have worked long and hard over many years to bring public higher education in the state to its present level of accomplishment. Many of the efforts required have verged on the spectacular in view of the fiscal, geographical, and political handicaps which have had to be overcome. However, as good as Maine's system of higher education has been in the past for the needs of the past, the Consultant Panel does not believe that the present organization and structure of this system is adequate either for the present or for the future.

The Consultant Panel considered various alternatives for coordination: separate boards for each college, separate boards for each type of college, a super board to oversee all of education, and other possibilities. None seemed to promise the cohesiveness, solidarity, flexibility, ease of administration, and the potential for speedy action and sound long-term development which expanding the university's present diversity and strength could offer. No one should assume that simply a change in name and status of the various segments of the state's present higher-education system will do the job and do it immediately. Far from it. Many more state dollars will be required than have been available in the past, and it will take time to get things done — especially to develop graduate programs, improve faculty training, recruit or train new faculty members, and develop good, solid programs in research and in technical education. Relatively less time and money, the Consultant Panel believes, will be required under the statewide system recommended than under other possible arrangements.

We believe that the increasing demands on the State Board of Education and the State Department of Education for the improvement of elementary and secondary education will make it difficult for them to give at the same time the much-needed attention necessary to assure the improvement of public higher education in Maine. Now, and for some years to come, the State Board of Education and the State Department of Education will have to provide increased leadership in Maine toward:

1. The improvement of teacher salaries and teaching conditions gen-

erally if Maine is to attract and hold good teachers in the public elementary and secondary schools.

2. The strengthening of school programs in English, foreign languages, and science; the development of better school libraries and laboratories; the development of honors and advanced-placement courses; and the use of television and other procedures and arrangements for the improvement of instruction.

3. The development of more diversified programs at the secondary level for students who do not desire the traditional liberal-arts studies program and may or may not wish to continue their education beyond high school.

4. The improvement of guidance, administration, and health services in the public schools of the state through;

a. better provisions for instruction for handicapped children;
b. the increase in state support for local school districts;
c. the development of area cooperative guidance, health, and psychological services;
d. the development and extension of remedial academic programs; and
e. the fostering of in-service training for the many teachers who are out of touch with new techniques and materials.

5. Preparing the schools to accommodate, through additional programs and facilities, more students because of earlier entrance ages and increases in the percentage of young people continuing their schooling until graduation.

6. Establishing an atmosphere conducive to progress and innovation in all the programs and services of the schools and giving guidance to and support for new ideas and practices.

The state of Maine is in an ideal position, if the Consultant Panel's recommendations are followed, to develop a public, statewide system of higher education that will be the envy of many and excelled by few. Continuing a series of separate institutions would intensify quality differentials that now exist and competition and rivalries that inevitably lead to wasteful duplication and overlapping of programs. Fortunately, the

rigidity does not exist in Maine which would, in many states, make impossible this ideal arrangement of making each component campus an integral part of a single institution. Furthermore, the over-all strength and reputation of the recommended University of Maine system should prove a substantial asset in efforts to secure financial support from foundations, Federal agencies, and other nonstate sources.

The University of Maine system proposed clearly will enhance the prestige of public higher education and each campus and branch will benefit. More importantly, the state of Maine will benefit; most importantly, the young people of Maine will probably benefit the most.

STRENGTHENING THE NEW PARTNERSHIP

In recent years, especially since 1963, the Federal government has become a very important source of support for higher education in a great many areas. Federal dollars are supporting research; loans, jobs, and scholarships for students; libraries; graduate programs, facilities, and fellowships; the construction of dormitories and academic facilities; special programs to motivate the disadvantaged; continuing education; and the advancement of developing institutions. In addition to these formal programs of educational support, many departments and agencies of the Federal government turn to higher-education institutions for specific services in the support of science, in the development of health services, for the conducting of overseas development activities, for the conducting of training programs and seminars, and for the development of materials and other services of many kinds. These Federal programs and activities amount to over $4 billion a year.

The Consultant Panel believes that in the future more statewide planning will be needed on the use of Federal funds in the various states. But states should not make plans only for Federal programs; states need plans of their own into which Federal, state, and other funds can fit. Without such plans states open themselves to a type of Federal control — a situation in which the states plan only to convert state services to meet national objectives rather than converting Federal dollars given in the national interest to meeting needs of the individual states.

The role of the Federal government is to identify national goals and needs in higher education, to provide a specially-directed infusion of public funds, and to evaluate the nation's total educational effort. Whatever Federal support is provided must be designed to strengthen state and institutional autonomy and encourage local initiative.

The role of the state is to provide localized leadership, to provide organization and coordination, to initiate planning, to conduct research, and to furnish additional financial support to the limits of its own resources.

The state is the key to securing a proper balance of strength within an enlarging three-way Federal-state-institutional partnership. No one of the partners should encroach on the others' responsibilities or seek a control or a degree of independence to which it is not entitled.

In designing a structure and form of organization for the future of higher education, no state should fail to recognize the importance of the present and future role of the Federal government. In the state of Maine today about five million dollars come from Federal sources for the support of higher education. It is the Consultant Panel's feeling that when:

a. sums of this magnitude are involved;

b. the purposes of these Federal programs are often supplementary to the purposes of the state;

c. Federal regulations require coordination, planning, and reporting by the state;

d. initiative, planning, and the matching of funds play significant roles in getting and using these funds; and

e. a state has a limited economic base from which to build a modern system of higher education;

a state must define its role with respect to Federal programs and develop an appropriate structure to play its role effectively, rapidly, and precisely in this new Federal-state partnership.

Federal programs are not designed to subvert or divert the purposes of the state or of the individual institution. If the state or the institution has no plans, nor structure or program within which plans for the use of these funds can be rapidly developed, the acceptance of Federal funds can, on the one hand, divert the state or institution from the things considered most important by the educational and political leaders. On the other hand, the funds can be lost to more aggressive states or institutions. The state of Maine cannot, educationally or economically, ignore the growing importance of Federal funds or fail to plan for their effective utilization in the future. We recommend, therefore, that the state of Maine establish a Higher Education Development Authority for the purpose of coordinating all Federal higher-education programs and funds in Maine for which state coordination is required. In general, the Authority would perform those higher-education functions required by state or Federal statute which could not properly be assigned to the Board of Trustees of the University of Maine because of possible conflict of interest or lack of au-

thority or concern for private higher education. Specifically, such an agency should:

1. Be established by state law but not as a department of the state government.

2. See as its major responsibility the marshalling of all higher-education resources in Maine — public and private — to the utilization of Federal funds for the purposes intended to meet Maine's higher-education needs.

3. Be designated as the agency within Maine for the administration of state-sponsored programs to which all students or all institutions — public and private — should have access (i.e., state scholarship and loan programs).

4. Provide continual advice and assistance to the higher-education institutions in the use of funds and the preparation of proposals for them.

5. Identify appropriate institutions, organizations, or agencies in the state, including the Authority itself, to administer Federal higher-education programs where this is a state responsibility.

6. Advise the Governor and State Legislature on the need for matching and supplemental funds and on the other legislative or administrative actions necessary to assure that full advantage can be taken of Federal funds in the state of Maine.

7. Be appropriately staffed and financially supported by state funds to cover the wide range of services needed by the higher-education institutions if better use is to be made of Federal funds.

8. Maintain an up-to-date accounting of all Federal funds in Maine being used in the support of higher-education activities and services.

9. Report annually to the State Legislature and the people of the state of Maine on its activities and services.

The legislation establishing this Authority should be carefully drawn after consultation with the heads of various Federal agencies to assure that it is recognized by the state of Maine and the Federal government as

the single agency in the state to coordinate programs of Federal support which require state planning and coordination. (We have been told that the United States Office of Education would look with favor on such an agency and is considering making recommendations to other states along these lines.) The Authority does not necessarily have to administer programs but it should decide which agency of government or which institution or combination of institutions in the state is best equipped to carry out the purposes of the Federal legislation in a way which best meets the needs of the people of Maine and its institutions of higher education.

The Authority should be under the control of a board of directors which is broadly representative of all public and private higher-education institutions in Maine; the membership should include trustees as well as faculty and administrators from both the public and private higher-education institutions, plus one or two representatives of the general public. This board should be appointed by the Governor for five-year overlapping terms from a slate of at least twice the number to be appointed, presented to the Governor annually by the proposed Maine Higher Education Association. (See page 38.) Ex officio members of the board might include the Commissioner of Education and the president of the Maine Higher Education Association.

There are still many sizeable sources of Federal funds for higher education for which state planning is not expected or required. In many of these programs, however, initiative by individual institutions or by groups of institutions is required, and plans must be developed and presented and matching funds provided. Another important responsibility of this Authority would be the leadership which it could provide to public and private institutions in Maine to develop plans and proposals for obtaining sources of Federal support and advising these institutions in the conduct of these programs once funds were received.

Increasingly Federal programs on behalf of higher education require the matching of Federal funds by the state or the institutions involved. Most public higher-education institutions have no source for matching funds except state appropriations. To an increasing extent private institutions are finding it difficult to raise the necessary matching funds for Federal programs. The Authority should be alert to such needs and make every effort to see to it that funds are made available to institutions — from state or private sources — for matching Federal funds especially in

those Federal programs which are particularly relevant to the needs of the state of Maine.

The higher-education institutions in Maine need today much more information about the wide range of Federal resources upon which they can draw for the support of their programs and activities. Obviously the study of such opportunities will be a continuing responsibility of the Authority. While in areas of Federal support where state coordination is specified the Authority will have a responsibility for coordinating and planning and possibly administering, nothing should interfere with the autonomy of the individual institutions to develop their own proposals and plans for Federal support.

We believe the State Legislature should provide funds annually for the staffing of this Authority, giving particular attention to funds for the conduct of meetings and of studies about the way individual institutions are making use of Federal funds for education. The Authority should not interfere with the responsibility of the State Board of Education and the State Department of Education for administering programs designed for elementary and secondary education.

The people of the state of Maine should not overlook any opportunity for increasing the support of their higher-education institutions. Putting the responsibility on the Authority suggested would do a great deal to broaden the financial base of support for higher education and bring Federal dollars — possibly double the present amount — into the state in the form and amounts most appropriate for the needs of the state of Maine.

TOWARD MORE COORDINATION AND COOPERATION

THE knowledge explosion, the increasing technical and service character of work, the advent of automation, the wealth of communication techniques and devices, the shrinking world, each has an impact on the higher-education curriculum; the impact of these grows in intensity day by day. New education programs must be offered, old ones discarded. Decisions must be made almost daily on where these changes should be made. In fact, the orderly and systematic development of general and specialized quality education programs is perhaps the most important attribute of a coordinated system of public higher education. In such a system:

a. unnecessary duplication of certain education programs is avoided;

b. appropriate duplication of other education programs is assured;

c. the broadest variety of education programs possible is made available in or close to centers of population;

d. the proliferation of uneconomical specialized institutions, services, or facilities is avoided; and

e. the transferability of credits within the system is maximized.

Under the new organization and structure recommended for public higher education in the state of Maine — a statewide single University of Maine system — there will be unusual opportunities to eliminate program and facility duplications and to greatly strengthen program offerings throughout the state.

With respect to the future role and activities of the various campuses, branches, and centers of the University of Maine, and their locations, the Consultant Panel recommends that the university proceed as follows:

1. *Gorham Campus.* Move immediately to consolidate all four-year undergraduate and graduate programs now offered in Portland and Gorham into a much-expanded, cohesive graduate and undergraduate program at Gorham where considerable resources — land, libraries, instructional facilities, dormitories — already exist and are of good quality

and are expandable. An advantage is Gorham's convenient location with respect to the population of southern Maine. Specialized graduate instruction offered in cooperation with the private colleges should be centered here, as should be the administration of the State Technical Services Act of 1965 program for southern Maine. A consulting program for business and industry should be backed up by graduate work in business administration and engineering. Also, serious consideration should be given to moving the law school from its present location in Portland to the Gorham campus.

2. *Portland Campus — A University Community Center.* Consolidate all one- and two-year terminal and transfer, general, technical, and vocational programs offered in Portland, South Portland, and Gorham on to the present campus in Portland and identify this campus as a University Community Center for the University of Maine. Expand on this campus programs in general, technical, and vocational education leading to certificates or associate degrees and develop increased offerings in continuing education for adults. This center should not have dormitories but an adequate library, laboratories, and shops should be developed and expanded. Some additional land for these purposes should be obtained. Use of certain facilities at, and faculty from, Gorham should be expected and encouraged. Facilities in South Portland should be made available for industrial use.

3. *Auburn Campus — A University Community Center.* Move immediately to expand and consolidate all one- and two-year programs — full- and part-time, technical and vocational, general terminal and transfer — now offered in Auburn by the Continuing Education Division of the University of Maine and by the Central Maine Vocational-Technical Institute onto the new campus being built in Auburn. The primary emphasis on this campus — which should be designated as a University Community Center — should be on offering one- and two-year programs leading to certificates or associate degrees in a variety of vocational, technical, and general-education fields. Such programs should lead to immediate employment or to transfer to other institutions in the university system. Appropriate library, laboratory, shop, and study facilities for commuting students should be provided.

4. *Augusta Campus — A University Community Center.* Develop

a permanent facility in Augusta to offer two-year programs for commuting students in general education leading to a certificate or an associate degree and one- and two-year programs for transfer to other colleges and universities. If sufficient demand develops, plan to offer by 1970 or later some two-year technical and vocational programs, the need for which is unclear at this time. The Augusta campus should be designated as a University Community Center and programs of continuing education should be developed and offered here also.

5. *Orono Campus.* Give increased attention here to the offering of graduate and professional work of the highest quality and to related research activities. Limit freshman and sophomore enrollment to students of recognized ability. Expect to accept an increasing proportion of juniors and seniors as transfer students from other centers, branches, or campuses of the university. Shift greater responsibility for the preparation of elementary- and secondary-school teachers to other campuses and centers of the university system. Shift two-year technical programs to other campuses of the university. Investigate the possibility of combining the programs of the privately-supported Northern Conservatory of Music in Bangor with those at Orono.

6. *Dow Campus, Bangor — A University Community Center.* Consolidate on the Dow campus, soon to be acquired in Bangor, the two-year technical programs now offered on the Orono campus and the vocational and technical programs being developed by the yet-to-be-opened vocational-technical institute in Bangor. Offer here also a general-education program for commuters permitting transfer to other campuses within or outside the university system. Place special emphasis on meeting the needs of commuting students.

7. *Farmington, Gorham, Presque Isle.* Move immediately to strengthen the faculty, library, laboratories, and other resources for the preparation of elementary- and secondary-school teachers and other educational specialists on the campuses at Farmington, Gorham, and Presque Isle, and to enlarge the baccalaureate-degree programs in the arts, sciences, humanities, social, behavioral, and physical sciences, and the master's-degree programs in teacher education. Consider establishing an Early Childhood Development Center on one of these campuses to specialize in the training of teachers and related research for Maine's schools.

8. *Fort Kent and Machias — University Community Centers.* Provide at Fort Kent and Machias, in addition to the present programs in elementary education, one- and two-year programs for commuting students permitting transfer to other specialized terminal or baccalaureate programs within or outside the university system. Consider phasing out over the next five years, the present specialized programs in teacher education and replacing these with a few technical or vocational programs closely allied to local employment needs. These two institutions are important to the economic, cultural, and educational development of the regions in which they are located and should therefore be centers as well for increased opportunities in continuing education.

9. *Presque Isle.* Consider moving now, but by not later than 1970, the vocational-technical programs offered on the former Air Force base at Presque Isle to the present state college campus. Take steps to achieve maximum coordination of administration and programs on these two campuses, particularly in establishing associate-degree programs in technical education which would include the offering of more work in the humanities, the arts, the sciences, and mathematics.

10. *Maine Maritime Academy — Castine.* Improve the specialized baccalaureate-level program at the Maritime Academy at Castine, offering more work in the arts, the physical and behavioral sciences, the humanities, and in marine transport administration (including business administration and industrial engineering). Special efforts should also be directed toward expanding the training of existing faculty and recruiting of new faculty, improving the library, and enlarging dormitory facilities. The program, facilities, and faculty of this institution which specializes in a field important to the future of Maine and the nation, should be brought up to the level expected of baccalaureate programs. Enrollment at this institution should be limited to no more than 600 students.

11. *The "Crash" Program.* Phase out the program of freshman-year courses for transfer to the University of Maine offered in various communities in the state through the Division of Continuing Education. As better programs are arranged in the university's permanent facilities (with permanent faculty, libraries, and other services) at least 90 per cent of the eligible students in Maine will have the first two years of college available within 40 miles commuting distance of their homes.

If the system of institutions and programs we have suggested can be supported by:

a. a centralized admissions program which helps place a maximum number of students in programs appropriate for their abilities and interest in facilities close to their homes for the initial educational experience, and facilitate transfer with offers of financial help when necessary;

b. increased use of instructional television, a system-wide program of credit by examination, and access to the faculty and library resources of the whole system;

c. a continuing program which evaluates the local, county, and regional needs of Maine for special or general full- or part-time educational services;

d. a close-working relationship between the faculty and administrators throughout the system;

e. a close-working relationship between the university — its various branches, centers, and campuses — and the public and private secondary schools of the state with respect to guidance information and school-program development; and

f. more extensive use of the campuses in the late afternoon and evening and during the summer months;

the University of Maine statewide system proposed in this report can meet the challenges of today and the future at a most reasonable cost to the taxpayer and with maximum benefit to the people of Maine.

We discuss in greater detail in the chapter on "Meeting Maine's Basic Responsibilities" the steps to be taken in fostering a wider range of accessible post-secondary opportunities for commuting students. The Consultant Panel is not recommending the development in the state of Maine of a separate system of two-year community or public junior colleges. The functions these institutions handle in other states are included in the various responsibilities suggested for the centers, branches, and campuses of the university.

The state of Maine does not need a separate system for vocational schools, for technical institutes, for community colleges, for teacher education, or for continuing and adult education. The nationwide trends are to combine these services and programs into broad-scope institutions. The Consultant Panel believes that the state of Maine can, in this respect, take a large forward step and show the way for other states to follow.

The Consultant Panel believes that every aspect of this new university system requires strengthening. The priorities are many and actions must be taken on many fronts simultaneously. Choices and allocations of funds should be the responsibility of the trustees and they should have the greatest flexibility possible, recognizing that throughout Maine the needs are great and the hopes of the people are high for enlarged and improved opportunities.

While we believe that the state of Maine will have to depend increasingly upon public facilities to meet its future higher-education needs, nothing should be done that restricts the initiative of private institutions to participate in meeting these needs as well as those of their own constituency. Maine can be proud of what a number of private institutions in the state have contributed to the state in the past — in supplying teachers, in contributing to the economic and cultural development of a region and the state as a whole, in educating many Maine students, and in setting standards of quality in programs and services which have been the envy of and model for the public institutions.

Serious conflicts between the proposed university system and the private institutions are not likely in Maine, nor is there much likelihood that the unique role of the various private institutions will change drastically. A number will expand, in fact must expand, to be economically-viable units; the majority, which are not accredited, should put their energies into improving existing programs and facilities; one — Bowdoin — may try to develop one or two doctoral programs which would be a great asset to the state.

The University of Maine in its much-expanded role should maintain close communication with the private institutions and seek advice from them on how best to meet the state's needs. In fact, the university might well offer to contract with the private institutions to undertake programs in certain areas of the state where university resources are either limited, not presently available, or likely to be nonexistent for some time.

While duplication of programs has been a serious shortcoming of higher education in the state of Maine, another shortcoming of equal or greater proportions (from which duplication often results) has been the absence of cooperative efforts among the public institutions and between them and the various private ones as well.

There are no reasons, legal or other, to prevent higher-education institutions in the state of Maine from doing things together; in fact there is

increasingly ample evidence nationally to show that institutions working together, especially small ones (of which there are so many in Maine) can carry on more educational programs and conduct them better if joint efforts are involved. But in the past there has been no voluntary arrangement to foster such cooperation, nor sufficient coordination to achieve it, nor funds to support significant cooperative arrangements.

If the University of Maine and the private colleges moved immediately to effect closer ties, a number of promising cooperative activities, beneficial to all, could emerge. The Consultant Panel recommends, therefore, that the higher-education institutions in the state of Maine form an association of institutions to promote interinstitutional cooperation which might be known as the Maine Higher Education Association. With respect to the activities of this association, the Consultant Panel suggests that it:

1. Serve as a forum for the discussion of all problems of higher education in the state of Maine.

2. Study and seek to effect a wide range of cooperative activities between the university system and the private colleges toward the improvement of higher-education programs and services in Maine, especially those which would help unaccredited colleges gain accreditation (for which Federal help may be available), or aid institutions in improving their efficiency of operation.

3. Advise the State Legislature with respect to the granting of new charters for private colleges or the changing of existing charters to permit the awarding of new degrees. Academy consultants believe that the present procedures for the state chartering of new institutions are too restrictive, cumbersome, and time-consuming, although their intent to prevent the expansion of low-quality higher education is eminently sound.

4. Give special attention to improving library resources and the development of more cooperation between Maine libraries following recommendations of the 1961 Metcalf Report (prepared by Dr. Keyes Metcalf, former Harvard University Librarian, under a grant from the Council on Library Resources) which we believe are still timely in Maine.

5. Look into how the institutions in Maine can cooperatively make greater use of computers and other types of data-processing equipment in

their education programs and in institutional management. Through "time sharing" arrangements institutions can provide their students, faculty, and administrative personnel with direct access to computers without having to invest in equipment.

6. Investigate ways of making use in higher-education programs of one of Maine's greatest unused education resources — educational television. Few states have the developed resources in this area comparable to those in Maine. (The Academy has arranged for the National Association of Educational Broadcasters to send a team to Maine to make recommendations on this matter.)

7. Seek ways of bringing all the resources of Maine higher education to the support of more and improved graduate education and educationally-based research on behalf of Maine industry and commerce.

8. Establish working relationships with similar associations in other New England states and the nation to effect more interstate cooperation among higher-education institutions.

As noted above, we believe the association could be especially helpful in advising on the development of new or the improvement of existing private higher-education institutions. The present procedures in Maine for the approval of new institutions make it difficult for them to be recognized as developing institutions and also make difficult the solicitation of funds by them. There are a number of ways, the Consultant Panel believes, by which quality in the development of new private higher-education institutions could be assured without resorting to procedures as restrictive as the present ones. For example:

1. Statutory amendment would provide for the initial issuance of a *provisional* charter when the institution was founded, authorizing the use of the term "college" as well as appropriate degree-granting power.

2. The provisional charter could be granted by the State Legislature (or by the Secretary of State if that is possible) upon recommendation of the proposed Maine Higher Education Association that the proposed institution would have sufficient funds and competence to warrant provisional incorporation for the programs proposed.

3. A provisional charter would be valid for five years, renewable for longer terms in unusual instances by the Secretary of State without recourse to the State Legislature upon certification from the association that such extension was warranted.

4. During the life of the provisional charter, degrees would be granted by the college but only with the formal consent of the Secretary of State after certification from the association that the proposed degree recipients had met the stipulated requirements of the college's program and that the institution had otherwise followed minimum standards prevailing in the academic community in readying its students for graduation.

5. In the five-year provisional period, the institution could demonstrate by its development that it deserved a *permanent* charter of incorporation, such status to be accorded by the Secretary of State without recourse to the State Legislature upon certification to him from the association that the institution had attained sufficient competence and had such other prospects for future growth that it could be relied upon as a quality independent institution.

6. The association, through committees of its membership, would provide the evaluations necessary at the three stages involved, namely, initial incorporation, the issuance of degrees under provisional incorporation, and readiness for permanent incorporation.

At a recent New England conference on higher education, Francis Keppel, former Assistant Secretary of Health, Education, and Welfare, indicated his opinion that while New England had long been proud of its institutions of higher education, ". . . it has sometimes preferred to pretend that all came up to its boasts." He went on to say that the time has come to recognize reality, to realize that problems exist, to identify the situations where quality needs to be raised, and to allow the strong to collaborate with the weak so that both can benefit.

There are always barriers which make cooperation difficult. Problems of geographic distance enter into the picture. There are differentials in educational philosophy, tradition, scheduling, economics, as well as qualitative differences which may militate against cooperation. There will always be some who feel that a free, effective, cooperative spirit can never be translated into ongoing, workable programs, the product of which

would be beneficial to all concerned, at minimum cost to each. The Consultant Panel feels that more formal cooperation among institutions in Maine holds great promise for the future and that out of sheer necessity the institutions will, if they formally organize for this purpose, finds ways to make it work.

FUTURE HIGHER-EDUCATION ENROLLMENT IN MAINE

MAINE's record with respect to the numbers of young people who pursue higher education after high school is perplexing and of concern to the state's educators, government leaders, parents, and potential future employers. There is a variety of factors — all interrelated — which determines the number of eligible students who will want today to take advantage of opportunities for higher education in any state:

- The number of youngsters of college age in the state at any given time.
- The number of students of college age who have not only fulfilled the requirements for college admission (the secondary-school diploma or equivalent), but who have been excited enough by their education to want more and are encouraged by their parents and teachers to seek more.
- The opportunities available for higher education: the number of colleges, the diversity of their offerings, their nearness to the state's population centers, and their attractiveness as higher-education institutions.
- The extent to which employers expect job applicants to have reached a level of maturity and to have received education and training beyond that of the typical high-school graduate.
- The adequacy of financial resources: the financial means of the parents, the high cost of living away from home, and the types of student aid available at the colleges and universities so that students are not priced out of higher education.

Recognizing that most of our young people today will be living a large part of their productive lives in the twenty-first century, some, at least, far from their places of birth and education, and that education is the best way to prepare our young people for adapting to the changes they must certainly face, many states are planning their higher-education future on broader assumptions than student "willingness" and "interest." Such states are asking: "How many of our young people should have

some post-secondary educational training?" Because the answer is usually "all or most all," some states are even moving to create demands where they don't now exist. For example:

- The Citizens Committee on Higher Education in Michigan said; "Therefore, as a matter of social welfare and investment in human capital, society must insist that all educable people be provided with the opportunity to take such training as they are able to take, and that they be *inspired to do so.*" (emphasis added)
- New York is drafting plans that will pledge some form of higher education to every high-school graduate by 1974.
- California already provides some type of higher education for 85 per cent of its high-school graduates.
- In Ohio the Board of Regents has specified that "the graduate of any chartered Ohio high school should be entitled to admission to publicly-assisted colleges or universities."
- In neighboring Massachusetts it is expected that at least 60 per cent of high-school graduates will attend college by 1970.

States realize increasingly that economic and social progress comes from the presence of large numbers of well-educated people who are able to work in the science-based industries and the service-related enterprises which are any state's assurance of a sound economic future. If these people aren't available, they have to be developed. Today Maine ranks 42nd in the nation in the percentage of employed persons considered to have the technical and professional skills required by the increasingly complex science-based industries and service occupations. One major reason for the low ranking is that Maine has lagged behind most states in training and educating its young people in the numbers needed for the future.

Higher-education enrollment in Maine for the academic year 1965-1966 is shown in Table 1 on page 45. These data and others we have assembled show that:

1. Enrollment in one- and two-year programs of a terminal or transfer nature is surprisingly low. (These are the programs which in many states today are providing trained persons for industry, for the hospitals, for service occupations.) For the nation as a whole 20 per cent of total enrollment is in this category; in Maine it's presently less than 10 per cent. Some experts are predicting that in 20 years 50 per cent of enrollment will be in two-year terminal or transfer programs.

2. In public institutions nearly one-third of enrollment in four-year programs is for teacher education. This enrollment is unusually high in relation to enrollment in other programs. We judge that this has happened because teacher education is the most accessible form of higher education in Maine for most students.

3. Graduate and professional enrollment is 3 per cent of total; nationally this figure is 10 per cent. These are the programs which provide college teachers, researchers, future managers for industry, and the professionals for government service.

4. The total full-time enrollment in Maine higher-education institutions represents 15 per cent of the 18 to 24 year olds in the state of Maine. The national average of 18 to 24 year olds now in higher education on a full-time basis is 20 per cent of the total.

The Consultant Panel believes that the state of Maine must move to increase, by every available means, the number of young people who continue their education beyond high school. This may require heavy recruitment, special tracks, remedial work, and possibly, for a time, lower standards of admission to certain public institutions than many of the state's educators would like. Maine can't wait, and especially the young people of this generation can't wait, until the schools catch up with the future; for thousands of youngsters in Maine, their future is now!

Given the chance for higher education, Maine youth can be expected to respond. Providing them the opportunity may even require the state, the people of Maine, to be willing for a while to educate beyond the state's need for new graduates. The rest of the country will continue to benefit, at least for a while, from the education Maine provides its youth until Maine's business and industry has need for them. As more and more students complete their education, be it at the associate, bachelor, or doctorate level, some will inevitably continue to move out of state, but a growing percentage will remain. The availability of effectively-trained manpower will help to attract more industry, more educated manpower, and more families with educational aspirations for their children. In this way what may seem to be a circle of "train and lose" will become an ever-widening circle of opportunity, educationally for the youth of the state and economically for all the people of Maine.

TABLE 1

Total Enrollment in Maine Institutions of Higher Education By Program 1965 - 1966

Name of Institution	Type of Program: 1-2 Year Terminal and Transfer	4-Year Degree Credit	Graduate Degree Credit	Special, Extension, Continuing Education	Total
Public Institutions					
Aroostook State College	—	351	—	—	351
*Farmington State College	—	615	103	215	933
Fort Kent State College	—	223	—	—	223
*Gorham State College	—	948	166	237	1,351
Washington State College	—	302	—	—	302
*University of Maine[1]	704	9,525	454	1,180	11,863
Maine Maritime Academy	—	493	—	—	493
Vocational-Technical Institutes					
Central Maine	104	—	—	350	454
Eastern Maine	**	—	—	—	**
Northern Maine	165	—	—	100	265
Southern Maine	414	—	—	117	531
Total Public	1,387	12,457	723	2,199	16,766
Private Institutions					
Bangor Theological Seminary	—	37	70	3	110
*Bates College	—	891	—	—	891
Bliss College	163	—	—	—	163
*Bowdoin College	—	880	—	11	891
*Colby College	—	1,430	—	—	1,430
Husson College	—	1,065	—	146	1,211
*Nasson College	150	465	—	—	615
Northern Conservatory of Music	—	67	—	—	67
Oblate College and Seminary	30	—	—	—	30
Ricker College	—	475	—	450	925
St. Francis College	4	436	—	—	440
*St. Joseph's College	—	223	—	—	223
Thomas College	100	205	—	—	305
*Westbrook Junior College	472	—	—	—	472
Total Private	919	6,174	70	610	7,773
TOTAL ENROLLMENT IN MAINE	2,306	18,631	793	2,809	24,539

Source: Confidential long-range planning reports made to the Academy for Educational Development by Maine institutions.

[1]All centers, branches, and campuses.

*Accredited by the New England Association of Colleges and Secondary Schools.

**First students to enter in the fall of 1966.

Our higher-education enrollment projections for the state of Maine from 1965 through 1985 are based on the following assumptions:

1. The age group most commonly thought of as determining the basis of higher-education enrollment, the 18 to 24 year olds, will, in the next 20 years, increase in Maine at a faster rate than the state's population as a whole. This increase will result from the higher birth rates of the previous two decades and an assumed reduction of the out-migration of the 18 to 24 year olds.

2. A much higher percentage of Maine high school graduates, and 18 to 24 year olds generally, will take advantage of higher education if it is available at reasonable cost in the form they desire; and if there is a reasonable chance of employment within Maine or outside the state if they undertake further education.

> We estimate that by 1985 at least 50 per cent of this age group in the state of Maine will desire some form of higher education (full- and part-time) in contrast to 24 per cent today.

3. Increased and improved education and guidance programs in the secondary schools, because of the growth in school consolidation and other special efforts of the State Board of Education, will contribute significantly to an increase in the percentage of students graduating from high school and a rise in those wanting education of some type beyond the high school.

4. As opportunities for higher education in Maine expand, so will the demand for higher education. Students will wish to remain longer in college once they have started, and many will enter graduate work.

5. An increase in loans and scholarships from the Federal and state governments will make post-high school education possible for many youngsters who could not previously afford to attend.

6. Parental interest in having young people continue their education will rise rapidly in the state of Maine as the opportunities for quality education become more accessible. At the moment parents and students lack evidence that the resources are available — teachers, buildings, facilities, finances — and that higher-education programs of the kind students want are available.

7. The private institutions in Maine will continue their pattern of enrolling the majority of their students from outside the state. Currently 70 per cent are out-of-staters. There may be a modest increase in their in-state enrollment, particularly if state scholarship programs encourage student attendance at the private institutions within the state. However, in the future the bulk of Maine students seeking higher education will have to enroll in the state's public facilities.

8. Students who might in the future have attended private institutions outside the state (following the pattern of this and earlier generations) may find it increasingly to their benefit to stay in Maine and attend public facilities, especially if these become more exciting and effective educational institutions.

9. There will be an increasing number of young people and adults who will need technical training or retraining, graduate education, or continuing education, and the increasing availability of leisure time will prompt many adults to enroll in part-time programs.

10. Special efforts will be made by the University of Maine and the schools to encourage every young person in Maine to gain the advantages of some type of post-secondary education.

11. The effect of automation and mechanization in eliminating jobs for unskilled and inadequately-educated young people, coupled with the changing nature of Maine's economy and the new types of employment opportunities which are even now available, will increase the future demand for higher education in Maine, as is already the case in other parts of the nation.

The present-day importance of more education for young people is revealed by a recent report issued by the American Association of Junior Colleges. This report notes that:

a. in 1930, graduates of high schools qualified for 90 per cent of the jobs; but

b. by 1970, high-school graduates will qualify for only 32 per cent of the positions available; and that

c. at least two years of college will be necessary to prepare prospective employees for 50 per cent of the jobs available.

Enrollment projections for the University of Maine and the private colleges for the next 20 years appear in Tables 2 and 3, and in Chart 1. Today 68 per cent of the full- and part-time students in higher education in Maine are in public institutions. By 1975 nearly 80 per cent of Maine higher-education enrollment can be expected to be in the various branches, campuses, and centers of the statewide University of Maine system the Consultant Panel has recommended. These increases will come mainly through growth in two-year programs, in graduate programs, and in continuing-education programs, which are badly needed in Maine but which the private institutions do not appear equipped to handle on the scale which will be required.

TABLE 2

Enrollment in
Maine Institutions of Higher Education
1965 - 1985

University of Maine (as proposed)	**1965**[1] (actual)	**1975**[2] (estimated)	**1985**[3] (estimated)
1-2 year terminal	1,387	11,360	18,150
4-year degree credit	12,457	20,000	24,000
Graduate	723	2,650	5,750
Extension, Continuing, Special	2,199	9,390	11,100
Total Public	16,766	43,400	59,000
Private Institutions			
1-2 year terminal	919	1,690	2,190
4-year degree credit	6,174	9,950	13,025
Graduate	70	125	250
Extension, Continuing, Special	610[4]	235	435
Total Private	7,773	12,000	15,900
All Maine Institutions			
1-2 year terminal	2,306	13,050	20,350
4-year degree credit	18,631	29,950	37,025
Graduate	793	2,775	5,990
Extension, Continuing, Special	2,809	9,625	11,535
TOTAL ALL INSTITUTIONS	24,539	55,400	74,900

[1]Includes University of Maine, five state colleges, Maine Maritime Academy, three vocational-technical institutes.

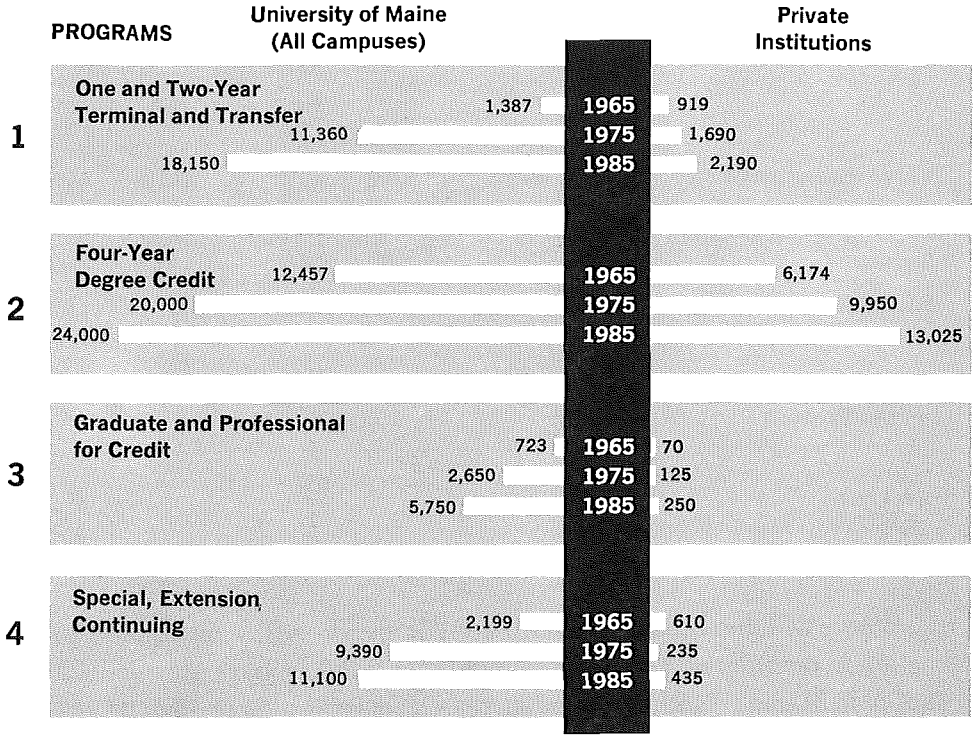
[2]Based in part on institution estimates.

[3]Academy estimates.

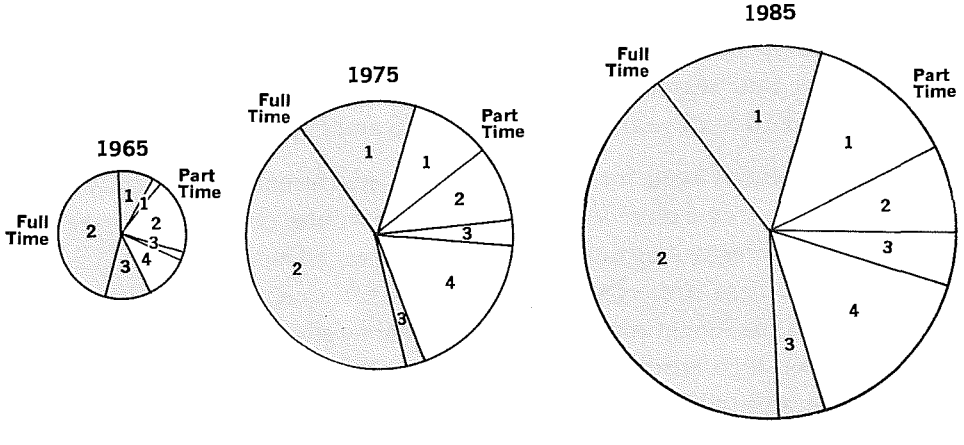
[4]Includes Loring Air Force Base program.

CHART 1

Enrollment in Maine Institutions of Higher Education Full-and Part-Time (1965-1985)



Full-and Part-Time (By Programs)



	1965	1975	1985
University of Maine	16,766	43,400	59,000
Private Institutions	7,773	12,000	15,900
Total	24,539	55,400	74,900

TABLE 3

Full- and Part-Time Enrollment in Maine Institutions of Higher Education 1965 - 1985

	1965 (actual)		1975[1] (estimated)		1985[2] (estimated)	
	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
1-2 year terminal and transfer	2,093	213	8,000	5,050	10,785	9,565
4-year degree credit	13,719	4,912	24,940	5,010	31,165	5,860
Graduate	394	399	1,388	1,387	2,995	2,995
Extension, Continuing, Special	*	2,809	*	9,625	*	11,535
	16,206	8,333	34,328	21,072	44,945	29,955
Total Enrollment	24,539		55,400		74,900	

*All students in special, continuing education, and extension programs have been considered part-time.

[1]Based in part on institution estimates.

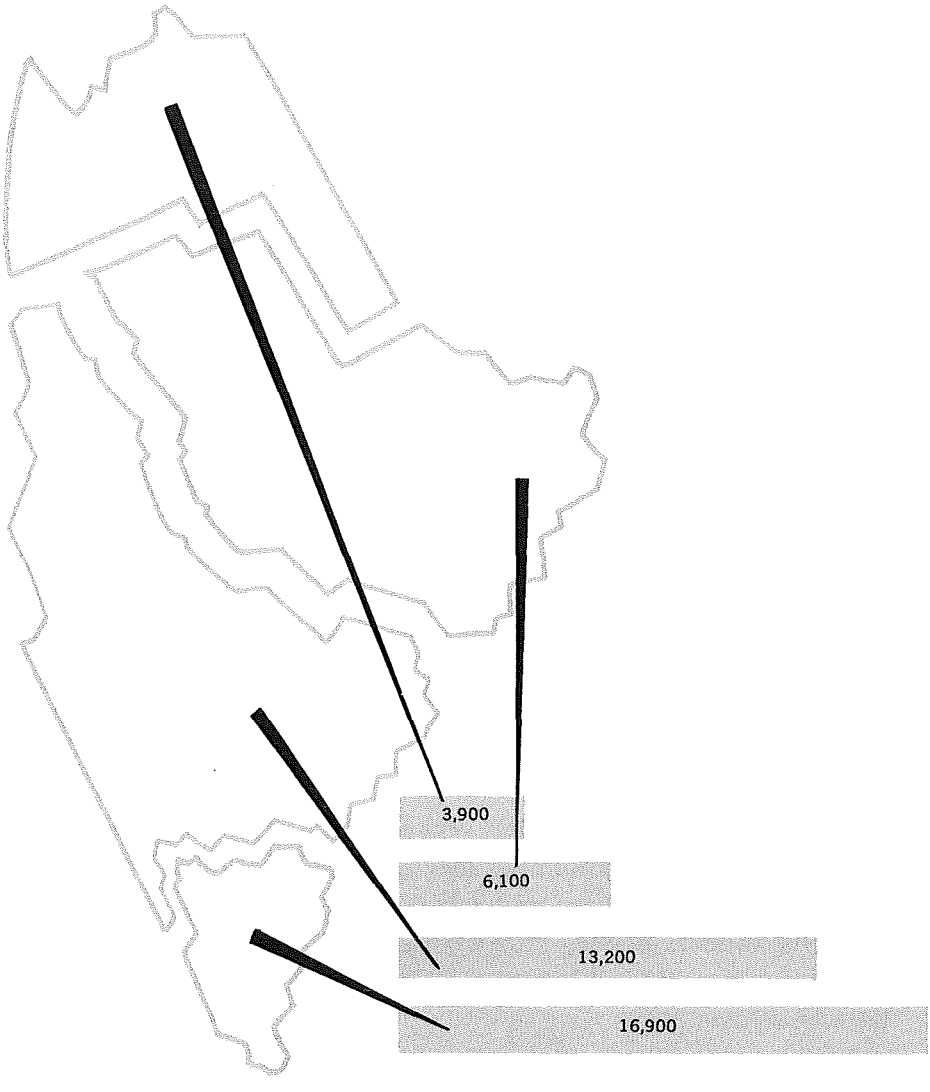
[2]Academy estimates.

Where will the students come from in Maine who will want higher education in the future? The trend nationally, a trend we have assumed will apply in Maine as well, is toward increased concentration of 18 to 24 year olds in and near the existing centers of population. The greatest increase in 18 to 24 year olds can be expected to come in the most southern part of the state, with Cumberland and York counties having a net increase of over 16,000 in the college-age group between now and 1985. Chart 2 shows for four regions of the state of Maine the estimated growth in the number of 18 to 24 year olds between 1965 and 1985.

The potential need for post-high school educational opportunity is so great that, given a chance, Maine's citizens, young and old, may seek to enroll in colleges and universities to an even greater extent than is indicated in these projections. In the state of Maine, as elsewhere in the nation, it is no longer prudent to avoid consideration of the probability of unforeseen high enrollment in the future. Neither is it wise to overestimate the ability of the present public institutions to handle the growing enrollment load without massive grants and appropriations from local, state, and Federal government agencies.

CHART 2

Increase in Number of 18 to 24 Year Olds in Maine By Regions 1965-1985



	SOUTH		CENTRAL WEST		CENTRAL EAST		NORTH		TOTAL	
Year	Number	%	Number	%	Number	%	Number	%	Number	%
1965	31,400	30	39,800	39	20,700	20	11,100	11	103,000	100
1975	43,200	32	51,200	38	26,200	19	14,400	11	135,000	100
1985	48,300	34	53,000	37	26,800	19	15,000	10	143,000	100
Increase (1965-1985)	16,900		13,200		6,100		3,900		40,000	

Source: Maine State Department of Health and Welfare and Academy estimates.

MEETING MAINE'S BASIC RESPONSIBILITIES FOR HIGHER EDUCATION*

RECENTLY the United States Commissioner of Education, Harold Howe II, summarized the challenge facing every young person today when he said:

> "The facts we confront say to us that modern society needs and will use an ever greater proportion of persons with more education and find little use for persons without it."

Everywhere in this country today efforts are afoot to convince teenagers and adults (and taxpayers too) that higher horizons in occupational achievements, personal accomplishments, and state prosperity can be realized through more higher education for more people. No state which hopes to progress can remain aloof to the trend toward greater opportunity for higher education; nor can any state expect to isolate its citizens from the social and economic forces which every day are making higher education more a necessity and less a luxury for the majority of its citizens.

If young people in a particular state are isolated too long from the enlarged educational opportunities they need, they will either leave their state to fill their needs (and probably never return) or accept gracefully their obsolescence, passing it on from generation to generation with obvious consequences for themselves, the local and state school system, and the economy too.

No state wants this to happen. On the other hand, few states can ever hope to provide the tremendous diversity of specialized higher-education services which its citizens may need, want, and expect — especially in professional and advanced graduate areas. Every state, however, must undertake to provide through its public system of higher education certain "basics" in higher education to which all of its citizens may expect ease

*This chapter has also been submitted as a special report to the Maine State Board of Education in fulfillment of a separate contract between the board and the Academy for Educational Development.

of access regardless of where they live or what financial resources they have. The Consultant Panel believes these basics are:

1. General academic programs which enable students to complete the first two years of college with associate degrees and transfer, if they desire, to a four-year program as a junior.

2. Two-year technical programs offering associate degrees and one- and two-year vocational programs designed for employment in a great variety of areas. These should be quality programs which may lead to immediate employment or possibly carry some transfer credit to four-year programs.

3. Remedial programs planned for "late bloomers", for under-achievers, and for those who are ill prepared (because of cultural, financial, or psychological reasons) which permit such students another opportunity to make up deficiencies and thus to qualify for admission to a transfer, technical, or vocational curriculum.

4. Continuing or adult education programs which will enable adults to upgrade themselves culturally as well as occupationally.

5. Closely articulated counseling programs in the schools and colleges aimed at assisting students to match their study and occupational interests with their abilities and to pursue education to the limits which these may set.

The characteristics of the institutional and educational setting in which these kinds of basic higher-education programs and services are provided are extremely important. The goal, we think (in Maine as it increasingly is elsewhere in the nation), should be to extend universal educational opportunity of less than four-year level to all people beyond the high school, whether high-school graduates or not. To achieve this goal in a systematic way will be the responsibility of the University of Maine system we have recommended. In carrying out this responsibility, the university must recognize that:

- Open-door admission to campuses with selective placement in the different educational programs will be essential.
- Effective guidance services to help each student get placed in the

educational program best fitted to his ability, previous educational background, and occupational objectives will be crucial.

- A broad, comprehensive curriculum that will permit selective placement but not rejection of any student will have to be provided, even to the extent of offering some basic secondary-level subjects without credit in addition to work through the first two years of regular college.
- Equal status will have to be accorded to all curriculum offerings, and the necessary faculty and facilities will have to be assured.
- High-quality instruction that will seek in every way possible to help each student achieve his full potential must be expected.
- Graduation and degree standards based on the requirements of the student's next steps, whatever they may be, will have to be established and maintained.
- Services to the community with respect to cultural events, economic studies, and access to libraries will be expected and must be provided.

Some will always argue that in such a system of programs and services the quality objectives of education will be subverted to serving objectives which are essentially quantitative. Variety in education which seeks to educate every person to his or her highest potential is, the Consultant Panel feels, consistent with the expectations for excellence in education. John Gardner, Secretary of Health, Education, and Welfare, put it well when he said:

> "We must develop a point of view that permits each kind of institution to achieve excellence in terms of its own objectives. . . . We must learn to honor excellence (indeed to demand it) in every socially accepted human activity, however humble the activity, and to scorn shoddiness, however exalted the activity."

We have interviewed many people in Maine, analyzed reports from college and university faculty and staff members, studied reports from private and public secondary-school principals, and reviewed studies of school dropouts and related problems. Our investigations lead us to believe that the greatest higher-education need in Maine at this time — a need that will have to be met for many years to come — is for a much greater diversity of quality terminal and transfer post-secondary opportunities provided in modern facilities, with adequate libraries and laboratories, with instruction provided by trained faculty, and with a high status accorded such programs by educators and laymen alike.

The vocational-technical institutes, the university's "crash" program, the university's experimental summer-admissions program, the "Upward Bound" projects of the various public and private institutions, the two-year technical programs of the university and of the private institutions, and others like these are each making a unique contribution to providing more diverse and accessible programs for Maine youth. But as good as these efforts are, they are not good enough. For example, our consultant commented on the adequacy of present programs and services in the area of vocational and technical education as follows:

1. Today confusion in vocational and technical education pervades every aspect of this important program area. In no quarter is there clarity as to the goals of post-high school technical and vocational education. Present expansion of vocational and technical education appears to be prompted more by the availability of Federal funds than by any coherent recognition of social and industrial needs in the state.

2. Maine seems to be running three separate programs of post-secondary education — at the university, at the vocational-technical institutes, and at the state colleges. They are unrelated both in policy and operation. The potential for wastage of the state's limited resources is obvious. Specific examples of uncoordinated efforts include:

a. the programs offered at the technical institute at Presque Isle and the state college located there;

b. the programs offered at the vocational-technical institute in South Portland, the university campus in Portland, and the state college in Gorham;

c. the offering of university transfer programs in Auburn and the vocational-technical institute located there; and

d. the development of a vocational-technical program in Bangor and the university's technical programs in Orono.

3. Curriculums at the vocational-technical institutes, except for two programs in South Portland, are generally at the level of a fair vocational program in a big city high school. Little concern is demonstrated either for general education in these programs or for continuing-education programs for adults.

4. There is little evidence that the vocational-technical institutes base their curriculum planning on solid studies and projections of Maine's future economy. There is no evidence that the programs in the institutes or other educational institutions serve Maine's traditional industries effectively; nor do they take into account the increasing job opportunities in various new light-manufacturing industries (such as electronics, plastics, and the manufacture of new technical instruments) that are developing in the state.

5. Enrollment projections by the vocational-technical institutes for 1970 and 1975 are unrealistically low. On the other hand, the criteria used in the State Department of Education's recent proposal for regional vocational centers employs questionable criteria which could result in too many centers with enrollment much too small to support solid curriculum offerings.

The university's "crash" program, the other major effort in Maine for post-secondary transfer education, was an emergency measure to provide urgently and immediately needed higher-education opportunities. The Consultant Panel views this program as a temporary expedient which should be phased out as soon as appropriate facilities and suitable transportation arrangements can be developed in the population centers. These programs seem to have served their original purpose. The challenge now is to provide students with substantive educational programs and experiences beyond the objectives of the "crash" program.

In the future the adequacy and quality of public post-secondary two-year terminal and transfer facilities, faculty, programs, and services will be an important source of strength to all higher education in the state of Maine. Inadequate services at this level detract from the college experience of the people involved, stifle rather than enhance personal ambitions, have a deleterious effect on the entire higher-education system, and limit the chances of students being able or desiring to transfer for further opportunities at the undergraduate and later at the graduate level.

The Consultant Panel believes that Maine should have a coordinated statewide public higher-education program which offers a variety of post-secondary one- and two-year educational opportunities which can lead to immediate employment or to transfer to other higher-education institutions or programs. Such a program should:

1. Be developed by and offered under the jurisdiction and coordination of the statewide University of Maine system.

2. Include all present post-secondary public institutions and any new institutions or two-year programs developed in the public sector.

3. Recognize that terminal and transfer opportunities must be provided in certain parts of the state not now covered by such programs to enable the maximum number of students to commute for some or all of their education.

4. Take into account that for some years to come, particularly in the areas of vocational and technical education, that the university may have to offer in its various centers, branches, and campuses programs of less than college level for certain students on a full- or part-time basis, particularly in vocational and adult-continuing education.

5. Make a major effort to assure that the quality of the work offered in these various programs is at the highest level consistent with the objectives of the programs offered and that this consistency exists throughout the state.

6. Bring high quality technical education, offering associate degrees, to the major population, industrial, and agricultural areas of the state in fields closely allied to existing industries in these regions.

7. Recognize that the needs for technical education throughout Maine are great; the university should move most of its two-year terminal-technical programs off the Orono campus to other areas of the state (including the Dow campus) where there is a growing need for technically-trained persons.

8. Give special attention to developing opportunities for cooperative work-study programs at the various campuses, centers, and branches, particularly in programs of technical and vocational education. Cooperative work-study programs can be offered in a wide range of fields including advertising, design, music, many areas of the health sciences, dramatics, political science, community welfare and planning, education, and government services, in addition to the traditional programs in business and technology.

9. Provide realistic means for the assessment of formal work experience for purposes of institutional credit and the satisfaction of diploma, certificate, or degree requirements.

10. Offer on its various campuses, particularly those in Fort Kent, Machias, and Farmington, one-year or even half-year programs for students who wish to transfer to a technical or vocational program on other university campuses where such programs are offered.

The state of Maine today is confronted with some difficult decisions with respect to the development of area-vocational centers in conjunction with the public secondary schools designed to offer essentially high-school level vocational work leading to direct employment at the end of grade 12. (The State Department of Education estimates that there may be as many as 24 requests received for such centers, which we estimate would cost in Federal, state, and local funds at least $24 million to provide adequate facilities.) While Federal funds are available to assist with the development of such centers, the less-populous states, under existing Federal quotas, are not likely to get enough to develop very many centers nor, because of limited funds and enrollment, be able to offer in these centers the substantive vocational programs which are so necessary for industrial and service work in the future.

Public press announcements of area-vocational center plans suggest that further duplication of effort and potential wastage of already scarce funds is likely to occur in the state of Maine unless a better set of plans and clearer lines of authority and relationships are quickly developed. For example:

- The York County (Sanford — 35 miles from Portland) proposal, recently approved, promises to take care of all the vocational- and technical-education needs both on a full- and part-time basis for youths and adults.
- Biddeford (16 miles from Portland) and Westbrook also plan to develop area-vocational centers.
- Portland plans in its area-vocational center to offer 24 vocational and technical courses in a school system which currently enrolls no more than 2,000 pupils in grades 11 and 12.

Yet, in South Portland there is a vocational-technical institute whose program, according to our consultant, is essentially at the high-school

vocational level. Shouldn't these various efforts be combined? A new form of duplication of effort should not occur, especially in a form which is no longer considered adequate educationally for the complex jobs of the future.

There is also another matter which concerns the Consultant Panel. The plans which have been submitted to the State Board of Education for area-vocational centers envisions that total enrollment in future high-school vocational programs could be as high as 40 per cent of the students in grades 11 and 12. We question seriously whether the state of Maine, or any state, will wish to channel, at the 11th grade level, such a high percentage of its young people into programs which are so specialized.

The Consultant Panel feels that students should not be separated from the full range of high-school subjects in English, social studies, science, and mathematics after the 10th grade, as is often required in concentrated vocational programs which begin, say, at the 11th grade level. Although the area-vocational center is supposed to minimize this problem by permitting the student to spend time in the center and in the school, we doubt that a satisfactory balance is possible if the student is to have a quality experience in both.

The general national trend toward more post-secondary education and training for virtually all youth questions the advisability of a state investing extensively at this time in highly-specialized vocational programs at the secondary level. The question should also be raised as to whether the student should cut himself off from higher education by too early specialization in the high school. Many persons believe that post-secondary community colleges and technical institutes should be the centers for specialized, occupationally-related education programs and that these institutions should work closely with the secondary schools in developing high-school programs which would lead to ready admission to the technical and vocational programs of the institute, college center, or branch, or to regular college admission in the event the student's career interests change.

We noted during our study that the Brunswick High School is working on a program with Gorham State College designed to integrate rather than isolate the vocational and academic curriculums. One important consideration in this proposed program is to give the student adequate opportunity to acquire courses for post-secondary education. Another example is the six-week summer program at the Northern Maine

Vocational-Technical Institute financed by Federal funds and designed to acquaint high-school students with the post-secondary study opportunities at the institute and the job opportunities which could follow. The institute's director pointed up the importance of this effort when he said: "I know that some of the boys would have become high-school dropouts had they not had this opportunity." The Consultant Panel thinks these are promising approaches which could be followed by all schools in the state in preference to establishing at this time additional high-school vocational programs.

The Consultant Panel believes that Maine will not wish to perpetuate an educational system which isolates vocational and academic programs from each other at the school or college level, which considers occupationally-related studies inferior to general studies, which does not prepare the high-school student of vocational interests with an education that will permit him to gain entry into post-secondary education, or denies the college-preparatory student vocational experiences. We recommend, therefore, that:

1. The public one- and two-year terminal and transfer programs in vocational, technical, and general education should be an integral part of the state's system of public higher education and offered on the branches, campuses, and centers of the University of Maine. To this end, the university should create a division responsible for the development and administration of one- and two-year programs to carry on the necessary planning, the training of teachers for these programs, the essential research and development, and program-development liaison with secondary schools. Policy-making for such programs should be the responsibility of the university's Board of Trustees or of a separate body reporting to the trustees. Programs of technical and vocational education should have a distinct budget within the university's total budget.

2. The centers, branches, and campuses of the university should develop curriculums balancing vocational, technical, and general education, leading either to the associate degree or to one- or two-year certificates of proficiency in specified fields. Programs should be sensitive to the state's economy, both traditional and developing, and to both general and special accreditation requirements. Each campus, center, or branch's offerings should be developed from curriculum recommendations of an

advisory committee of persons drawn from labor, industry, business, education, and the university in the region being served.

3. Every effort should be made to consolidate resources wisely, and to eliminate such obvious duplications as those in Presque Isle, Bangor-Orono, Portland, and Auburn.

4. High schools should develop without delay two-year programs which will prepare students simultaneously for the programs in vocational and technical education or admission to other post-secondary educational opportunities. The educational-television resources of the University of Maine and Station WCBB should be of tremendous assistance in this effort. The centers, branches, and campuses of the university offering vocational and technical programs should also serve as area-vocational schools offering one-year certificate programs either at the 12th or 13th year.

5. In the recruitment of faculty for the programs in vocational and technical education more heed should be paid to industry as a source of teaching personnel, with the university developing appropriate one-year in-service courses and workshops to train faculty for vocational and technical programs.

6. With the single exception of a much-needed branch of the university in the Augusta area, where consideration should be given to developing programs in technical and vocational education in addition to general education and transfer and terminal education, the state should postpone the establishment of any additional centers for at least five years.

7. In furthering the development of programs in technical education at the completion of which students should receive associate degrees, the university should recognize that:

a. in addition to the more specific skills and competences required by particular areas of technical employment, programs should also include a substantial body of general education, particularly of a kind designed to develop individual skills of communication and management as well as a long-term motivation to learn;

b. Maine's needs for trained persons to support the work of pro-

fessionals are broad and program offerings should reflect the need, and programs should be considered in health sciences, government service, social work, business and commerce, agricultural business, education, etc.

8. In preference to setting up area-vocational centers, efforts should be made to build upon the basic vocational offerings of the present vocational-technical institutes as these are incorporated into the statewide university system to serve the highly-specialized vocational interests of Maine's young people, with, of course, appropriate preparatory programs developed in the high schools throughout the state. (Local resources could be brought into this effort through the payment of tuition supplements as a share of operating and capital costs.)

9. If residents of certain areas of the state where there is specialized industrial concentration — such as the southern part of Franklin County and the east central part of Oxford County, the southern part of Aroostook County and the northern section of Penobscot County — find vocational and technical opportunities inaccessible, these areas should receive first attention in the development of appropriate preparatory programs in the high schools. Special arrangements should be made for students to spend some of their senior year or part of the summer in the closest center, branch, or campus of the university offering vocational and technical programs. It is also quite possible that on the campus at Farmington, if in the next few years there is industrial and population growth in that area, there should be some vocational and technical offerings available.

10. Extensive use should be made of the educational-television resources in Maine to tie together the various campuses of the university and to increase the servicing of the public schools. (The Academy has arranged for a team from the National Association of Educational Broadcasters to work with the university on this matter.)

In summary, the University of Maine should be able to meet adequately these basic responsibilities for higher education with the consolidation of present programs, facilities, and services, and the development of appropriate new programs in the Portland, Auburn, Presque Isle, and Bangor-Dow areas; with the development of more permanent facilities in the Augusta area; and with the offering of terminal and transfer op-

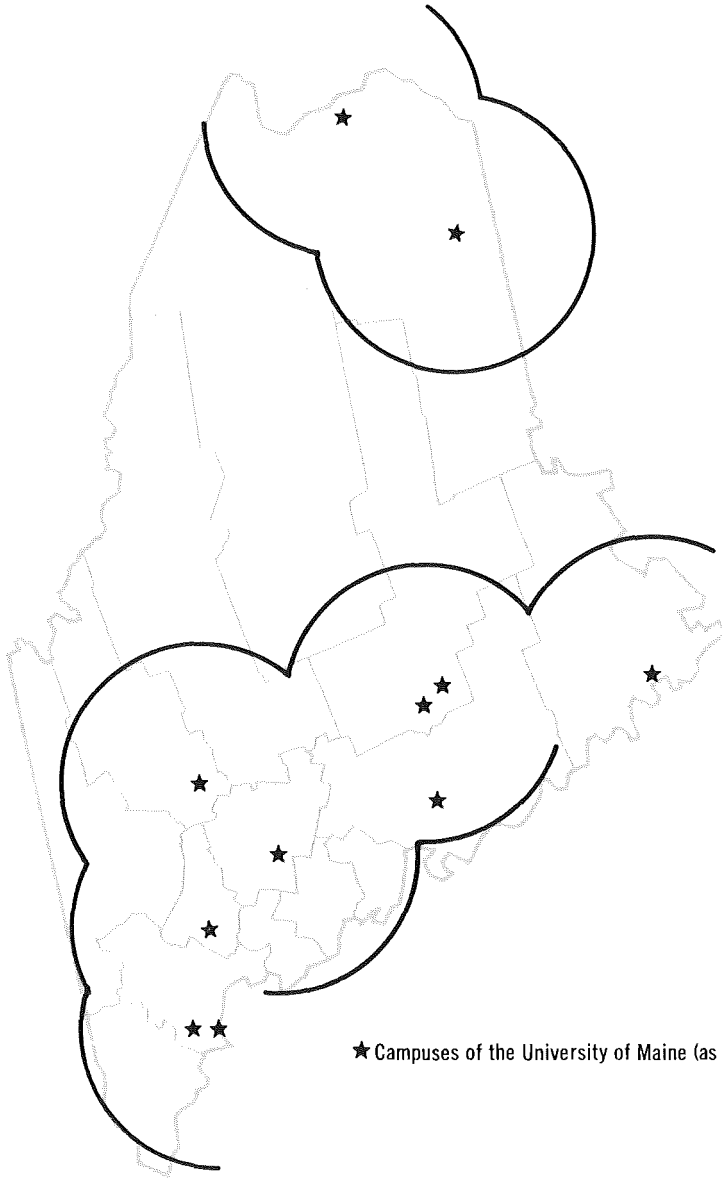
portunities in the present facilities at Machias, Farmington, and Fort Kent; coupled with a closer-working relationship between the schools and the university and assisted by the use of equipment such as educational television and computers which have proven their worth as essential adjuncts to the teaching process. These are the best arrangements which can be made now and for the next ten years to put first class educational opportunities, at the most reasonable cost to the state and the students, within reach of most of the people of the state of Maine. Ten years from now, present population trends suggest that few, if any, changes will be required in these arrangements.

The Consultant Panel believes that Maine's geographic location offers unusual opportunities for the strengthening of cultural, economic, and educational ties between the United States and Canada. One of the private colleges (Ricker) and three of the proposed university campuses (Fort Kent, Presque Isle, and Machias) are within commuting distance of a number of population concentrations in Canada which are not accessible to institutions of higher education in Canada. At the same time the Consultant Panel strongly supports the university's development of a unique graduate program in Canadian-United States studies, it believes that such a program would be all the more meaningful if there was a more extensive interchange of undergraduates across the border as commuters to these institutions on the United States side. It is quite conceivable that an arrangement for the transfer of credits for such students could be worked out between the University of Maine and the University of New Brunswick, and that foundation and Federal support would be available to support efforts of this kind by the University of Maine and Ricker College.

Chart 3 shows the area of the state which would be covered within a 40-mile radius from one or more of the campuses of the statewide University of Maine system. For students who live outside of these areas, scholarships and other arrangements should be made for them to attend a campus having dormitory facilities. There is nothing, however, to prevent the transportation of students from within or outside of these areas to an appropriate campus. In fact, we would encourage the university to experiment with transportation arrangements which could be designed to provide cultural and educational experiences — lectures, television, radio, and movies — for students while being transported to and from pickup centers near their homes.

CHART 3

Areas Served by Public Higher Education in Maine



★ Campuses of the University of Maine (as proposed)

The Consultant Panel does not believe that it should specify the programs — technical, vocational, or transfer — which should be offered by the university on its campuses, branches, or centers. We have observed, however, that many substantive programs are possible in career areas which are not related just to heavy and light industry or agriculture. In California over 100 different associate-degree programs are offered. Throughout the country programs in health, education, social work, business (including marketing, insurance, banking), food services (preparation, processing, and marketing), and government service are being developed and successfully offered. The key is local involvement in program planning and a close-working relationship between the secondary schools and the higher-education institutions — plus good people to run the programs and adequate enrollment to make good programs possible.

The basic responsibilities, to which we have referred, while being clearly identified and supported as part of higher education, are in many states being offered and administered separately from the activities of the state university or the state colleges. The reasons for this have not been educational — but attitudinal and political. We believe that the people of the state of Maine want and can support most effectively a cohesive statewide response to the great variety of their higher-education needs. The Consultant Panel believes the response can be provided best by the statewide University of Maine system we have recommended, and that in responding to these needs in this way preserves for the young people of Maine the widest degrees of freedom of action with respect to their future.

GRADUATE AND PROFESSIONAL EDUCATION, AND THE FACULTY PROBLEM

In 1928, when the last comprehensive study of higher education in the state of Maine was undertaken, a serious shortage of graduate education in the state was recognized. The report said:

> ". . . the most important single need is probably that of more adequate facilities for graduate study. The present facilities are too limited for the best interests of the State. More liberal financial support is needed and is here recommended, especially at the University, which appears to be the logical center for the further development of such work."

Efforts to improve the situation were slow to materialize. In fact, the 1928 survey statement describes well the situation in the state of Maine today. From 1923, when the Division of Graduate Study was established at the University of Maine, to the present, a total of 29 Ph.D.s have been awarded in the state of Maine — the first in 1960. While many Maine residents who received their undergraduate education in the state pursued graduate work outside of the state, the percentage of Maine residents educated in or out of the state of Maine receiving the doctor's degree has been and continues to be one of the lowest in the nation.

Today, a most urgent problem facing the University of Maine is that of defining its future role in graduate study and research. It should be noted that with respect to doctoral programs:

a. it is not easy for an institution beginning doctoral programs to build strength or to achieve national, regional, or even local recognition in a short period of time;

b. graduate study, particularly at the doctoral level, is one of the most expensive instructional activities requiring expenditures estimated at 10 times those required for the average undergraduate program in the same field;

c. strength in any one department or field is directly associated with the quantity and quality of existing faculty research and publication per-

formance, the academic salaries in the upper two professional ranks, and the available library resources;

d. there must be sufficient teaching assistantships and fellowships to assure a student body large enough to justify courses and seminars and to insure a stimulating association of students;

e. many graduate programs require expensive and highly-specialized equipment, particularly computer equipment of very large capacity; and

f. strong graduate education in a variety of disciplines is essential to the support of many professional programs, is crucial to the recruitment of good faculty personnel, and determines the extent to which an institution can share in the rapidly-expanding Federal funds for research and development purposes.

There are at least three groups, the Consultant Panel believes, whose needs for graduate education must be considered by the University of Maine as it plans to meet the state's deficit in this area:

a. students — from within and outside of Maine — just completing their baccalaureate work who desire to continue their education in a variety of areas because of intellectual curiosity or the requirements of their chosen vocation demand further study;

b. employed adults in need of further training commensurate with their technical or service-related employment in order that they may grow in their chosen profession or occupation, including persons in the health sciences, education, business, industry, government, finance, and public-service occupations; and

c. faculty members in public and private higher-education institutions in Maine whose training is minimal and who desperately need more work to grow and develop in their chosen field; it may be some years before Maine can attract Ph.D.s in large numbers for faculties, and the availability of more graduate work in Maine may help attract persons to faculty positions who know that their own education can continue as they develop their teaching and research skills.

Few investments pay as high a return, to the state or the student, as education — particularly graduate education. Whereas higher-education enrollment nationally has increased fifteen-fold in 60 years, graduate-education enrollment has increased 50 times. The American Council on Education reports that 45 per cent of college graduates in 1965 said they

wanted to start graduate work, 20 per cent actually did. Graduate education, with its related research activities, has increasingly been the basis of new knowledge and of progress and innovation in our society, and the major source of strengthening of education programs in our nation's institutions of higher education. Quality graduate education is the hallmark and the obligation of a great university.

With respect to furthering opportunities for graduate education in Maine, the Consultant Panel recommends that the university undertake simultaneously three inter-related approaches. These would:

1. Build on existing strengths within the university in both the theoretical and applied aspects of such fields as chemistry, forestry, physics, zoology, engineering, and education in addition to creating strength in one or more areas of the humanities and the social and behavioral sciences, recognizing that interdisciplinary arrangements offer the best chance of building rapidly and effectively strong graduate programs for the future in all areas.

2. Take advantage — on a contractual basis, if necessary — of resources in public and private institutions in New England to broaden the opportunities for graduate education for Maine students, especially those with interests in highly-specialized fields. The president of the university has expressed interest in developing a traveling-scholar type of graduate arrangement in New England (such as has been developed by the "Big Ten Universities") and we believe this has real promise and should be supported.

3. Draw together resources in Maine other than those in the university (such as the private colleges, the Jackson Laboratory, vacationing scholars) with the possibility of developing joint graduate programs in areas of the humanities and social sciences and possibly in some areas of the sciences as well.

With respect to cooperative graduate arrangements among the University of Maine and private institutions in the state, the Consultant Panel observes that:

1. There is great talent in the faculties of a number of the private institutions. Many faculty members are active in research and publishing

and some would probably be willing to devote time to the strengthening of Ph.D. programs in the state.

2. A committee on graduate work composed of representatives of the private colleges and the university could assist in developing a cooperative graduate arrangement. The dean of the university's graduate school would be the logical person to head the committee which might consist of three university faculty members and three from the private colleges, in addition to the chairman.

3. This arrangement could serve to interest college faculties in the advanced work of the university and to stimulate the interest of faculties throughout the state in advanced study and research. This committee might be tied in with the council of the graduate school through the graduate dean who would be in both groups.

4. Such a plan would have many intriguing aspects. It might even lead to the development of a formal consortium in whose name degrees might actually be awarded. It could demonstrate how public and private institutions can collaborate with profit to both and how both working together can be of great help in strengthening Maine's total program of higher education.

Although the university may have difficulty in attracting sufficient faculty to staff extensive graduate offerings in the immediate future, a number of the private institutions, especially Bates, Bowdoin, Colby, and Nasson, have faculty resources which could assist in developing a variety of graduate opportunities in the southern part of the state. The Consultant Panel believes that for the next few years the staffing of graduate programs, at least at Gorham, and the awarding of graduate degrees there, could be worked out cooperatively between the university and private institutions. We suggest that the state provide support for such a cooperative effort through the university and that plans be prepared for students to have access to the libraries of the cooperating institutions and to be taught by faculty from the various institutions. The faculty or their institutions should be compensated appropriately.

The state of Maine's low rate of economic growth suggests that now is the time to (a) make a strong commitment to hold existing and attract additional talented people to the state, (b) draw into the state the indus-

tries to employ them, and (c) make a financial commitment to improve the quality of Maine's higher-education system, particularly at the graduate and professional levels. Since Maine can not expect to provide for all its graduate and professional educational needs, efforts should be concentrated in those areas which offer the key to the state's future development — that is, research, health, engineering, and managerial talent.

Our consultants examined the various graduate and professional education needs in Maine. Their reports lead us to conclude that:

1. The University of Maine's law school — one of two publicly-supported law schools in New England — should be able, if properly supported, to meet Maine's needs for new lawyers, and the continuing-education needs of practicing attorneys for many years to come. This school, one of Maine's most promising educational assets, will be even more important in the future, not only to Maine but as a legal center for the New England Board of Higher Education compact program. The university's capabilities for significant work in such new fields as marine sciences and United States-Canadian relations (both of which have many unexplored legal aspects) should be greatly enhanced by the presence of a law school within the university structure.

2. With respect to the health sciences:
   a. The availability of the Vermont Medical Center and the opening of new public medical schools in Massachusetts and Connecticut, (all operating within the exchange provisions of the New England Compact on Higher Education), provide Maine with time to meet other pressing higher-education needs before establishing its own medical school. Maine should forego, for the time being, the temptation to establish a medical school in favor of developing graduate work more extensively and concentrating more efforts in research. More research, embracing the training of graduate students in engineering, science, and management, may be the magnet to attract the industry the state needs to replace its loss in agricultural employment. The resulting industrial buildup could ultimately provide the tax base to support a future medical school.
   b. A shortage of nursing educators has made it difficult for the University of Maine's School of Nursing to play the role it

should in meeting the state's need for nurses. Moving the school's program to Portland should be considered; perhaps at least the director of that school should be in Portland in order to give better coordination to clinical training. More attention should be given to the education of nurses for which the university should assume a major responsibility.

c. The New England Board of Higher Education compact seems to be meeting adequately the needs of Maine students for training in pharmacy and physical and occupational therapy. While there is no school of veterinary medicine in New England, one is contemplated in Connecticut. If it is available to Maine students under a compact arrangement, it should be adequate for the state's limited and specialized needs.

d. Various campuses of the university and Westbrook Junior College could train all the medical technologists the state needs, but the programs should be broadened and more students accommodated. At the present time training for only eight of the 38 recognized professional health career areas is provided in Maine according to the United Hospital Fund of New York.

3. Graduate training for social work is not provided in Maine. The State Bureau of Social Welfare estimates that at least 50 additional persons with graduate training in this field will be needed annually for some years to come. At present 25 persons from the Maine State Bureau of Social Welfare are on leave doing graduate work in Boston. Similar situations exist throughout New England, particularly in Vermont and New Hampshire. The University of Maine is considering a graduate program in social work, and this should be augmented by in-service and refresher programs through the Division of Continuing Education.

4. Industry will need encouragement to expand in Maine, but as studies of Maine's economy have pointed out, the absence of strong technical programs related to science-based industries is a hindrance to economic growth. While the projected expansion of engineering education is adequate for present needs, a decision to use education as a force for economic growth will require more trained manpower especially in engineering and business administration. Educational opportunities in these fields must be provided on a full- and part-time basis close to the population

centers. The following steps should be taken in the southern part of the state:

a. expand the present four-year business-administration, liberal-arts, and teacher-education programs, and study the need for undergraduate-engineering programs;

b. develop and expand graduate programs at the master's level on a full-time basis; and in addition to the present M.B.A. program, add an M.S. program in engineering; expand the master's-degree programs in education, in the humanities, and in the social and behavioral sciences; and investigate offering one or two doctoral programs in education fields by 1970, and in other areas of the humanities and social sciences by 1975;

c. expand the Continuing Education Division noncredit adult-education work; also investigate the need for more degree-credit work especially in health fields; and

d. offer undergraduate and graduate work in public administration in the Portland area in conjunction with expanded programs in business administration; the state of Maine is no exception to the national trend in the need for trained personnel in public administration, and this would be a natural extension of the university's work in local government.

5. The university should be alert to opportunities to increase its work in marine sciences, including establishing a "sea-grant college" program with Federal funds that would cover specialized graduate work, appropriate facilities and library. It has been said that in ten years the nation may be spending as much on oceanographic research as is being spent today on aerospace programs. Also cooperative work in the marine sciences might be possible between the University of New Hampshire and the University of Maine's Darling Center at Damariscotta.

6. The university's interest in developing a program of graduate studies in Canadian-United States relations is a very timely idea. Joint studies and student and faculty exchanges between the University of Maine and universities in eastern Canada should be worked out.

As the university pushes forward with new graduate and professional

programs a greater amount of study in the humanities, the arts, and the social and behavioral sciences should be included. The curricula for many graduate and professional fields are now being revised to incorporate new developments and new thinking as to training needs. Opportunities will occur to include some background in fields of study that have heretofore been largely excluded.

In addition much more can be done in the future to draw departments together to strengthen each other's offerings at the graduate and professional level. The university should note this nationwide trend in its planning.

The most important feature of a strong university is the quality of its teaching staff. Although quality is sometimes hard to measure, the Consultant Panel believes that quality is evidenced in part by the extent to which:

- faculty members have extended their own professional training to the highest appropriate level in their field of teaching and research;
- graduate work through the doctoral degree has been developed at the institution in a number of areas;
- faculty members are alert to and implement in their teaching, changes in discipline, content, and methodology in their own and related fields; and
- faculty members display a spirit of inquiry by contributing through research and publication to improvements in discipline, content, and methodology, while through their teaching and guidance functions develop among their students a keen interest in and understanding of the principles and concepts which determine the scope of their subject area.

Several matters stand out with respect to faculty in Maine's higher-education institutions:

1. Maine ranks 48th among the states in the preparation of doctorates and last among the states in the proportion of its citizens who seek graduate education.

2. Among New England states, Maine has the highest percentage of faculty members who have obtained only the bachelor's degree and the next to the lowest percentage of faculty who have earned the doctorate or highest appropriate professional degree in their field.

3. There is a lack of significant graduate work through the doctorate at the university and faculty research and publication activities are minimal.

4. Maine was not mentioned in any one of the categories of quality graduate programs in the recent study of graduate education by the American Council on Education.

If present efforts to improve the quality of faculty throughout the statewide University of Maine system are to be successful, efforts should be made to:

1. Add several new faculty members who have recognized ability for teaching at the graduate level and for scholarly work, providing special financial arrangements where necessary. The experience elsewhere is that such individuals can help greatly to stimulate faculty zeal for scholarly work and effective teaching within their university and throughout the state.

2. Provide higher compensation for professors and associate professors generally. Low salaries competitively at these two levels are a fundamental weakness in public higher education in Maine.

3. Establish a program of fellowships and assistantships at the university which in number and amount will be competitive with those offered by the best universities in the country.

4. Arrange more adequate leaves with pay for faculty members to continue their graduate work and individual research interests.

5. Study the feasibility of establishing a special-degree program for future college teachers such as the Master of Philosophy program at Yale University or a Doctor of Arts program.

6. Establish a special program for the training of present and future faculty members for the enlarged number of vocational and technical programs which Maine must offer in the future if the needs of its young people for occupationally-related education are to be met.

There are other steps which can also be taken. For example, the state universities in Nebraska and Oklahoma arrange for advanced-graduate

students to teach in the public and private colleges in the state so that faculty members in these colleges can take time off for graduate study at the university. We see nothing to prevent such an arrangement in Maine once graduate enrollment has been built up.

The future availability of good college teachers (more than the availability of dormitory rooms or classrooms) will determine how much higher education can be offered and how good the quality will be. While numerous ways exist for increasing rapidly the efficient utilization of space in our higher-education institutions, it takes a long time to train new faculty members. It has been estimated that nationally the supply of well-trained college teachers will not be adequate for the next eight to ten years — it may take longer in Maine. Faculty can, however, be better utilized than is commonly done today — through team teaching, television and telephone lectures, cooperative institutional arrangements, and independent student study; these approaches should be given maximum attention in the university system.

The role which the University of Maine can play in helping meet its future faculty needs and those in other institutions in the state will be determined largely by how successful the university is in recruiting a strong faculty and improving the academic climate of public higher education; substantial financial support from the state for salaries, fringe benefits, fellowships, research, libraries, and leaves will be required. A strong faculty is the best assurance an institution can have that its graduates will make good teachers.

Another matter of central importance needs to be noted. More time will have to be spent on research. This used to be cared for by the professor on his own time. This will no longer suffice. In many universities research occupies more than half the time of the more mature members of the teaching staff. These and other facts add up to a formidable picture of the task of a university that has need of strengthening its academic programs and at the same time building a new morale on its various campuses, centers, and branches.

If the state of Maine is to contribute its share to the national need for persons with graduate training and help balance its own intellectual deficit, it should, in the judgment of some experts, be producing right now 90 to 100 Ph.D.s per year. This will be a large order for the University of Maine to accomplish in 10 years; one which will require extensive recruitment activities and expenditure of funds beyond those now con-

templated either by the university or the state itself. While efforts of this kind are expensive, they must be made now if the state of Maine is to be, as we think it should, more in the mainstream of American higher education five or even ten years hence.

EDUCATION, ECONOMIC DEVELOPMENT, AND RESEARCH

WHAT does education have to do with economic growth and prosperity? The Tax Foundation has answered this question in a general way — 23 per cent of the growth rate in national output between 1929 and 1957 can be attributed to the increased educational level of the labor force. But this is the indirect, invisible contribution which education makes.

Practically speaking, education is also big business — nationally a multibillion dollar business — and like big business of any kind it makes a direct contribution to growth and prosperity by employing people, purchasing services and goods, engaging in capital expansion, etc. For example: with a total expenditure of over $80 million in 1965, higher education in the state of Maine was one of the largest industries in the state. In most of the towns in Maine where higher-education institutions are located, these institutions are a significant aspect of the economy of the area.

Education also has a lot to do with the environmental setting in which economic growth takes place. In simplest terms, the quality and quantity of education determine whether there will be an environment conducive to economic and cultural development. For example:

1. The elementary and secondary schools provide the basic educational opportunities for the children of workers and the quality of these very often determines how attractive a community will be as a place in which to live and work.

2. The institutes, colleges, and universities, through their diversity of programs, produce the skilled semiprofessional, managerial, professional, and research workers which business and industry need, as well as the persons to minister to the spiritual, health, and governmental needs of the people.

3. The graduate and professional schools provide the advanced spe-

cialists whose qualifications for managerial and development positions are unequaled.

4. The research, advisory, and training services of the higher-education institutions provide many of the new ideas, the new processes, and new procedures which both manufacturing and service industries need to stay competitive in the economy.

5. Already in a growing number of instances around the country the economic prosperity of a whole city or community is affected by its cultural climate. Increasingly in the future the major corporations, as well as small businesses with highly-trained employees, will scrutinize the cultural opportunities of an area before deciding whether or not to locate a new plant or office building there. Higher-education institutions — and particularly those with strong graduate programs in the arts and humanities, with the attendant cultural activities — can do much to enhance the life of the people generally and the attractiveness of the region or state as a place in which to live and work.

Measuring the total impact of good education on the prosperity of a locality or state is, as the foregoing suggests, an impossible job. We can, however, view how some of the major corporations look at education — its quality and quantity — when decisions are being made about the location of new plants, the enlargement of existing ones, or possible relocation in another area. According to the *Wall Street Journal,* a major factor in the selection of new plant sites, as reported by executives of some of the larger corporations and the consultants advising them on locations, is school quality. Some of the more forward-looking companies even make efforts to improve the educational conditions in the communities in which they operate.

Accounting for this increased interest and action is, of course, the growing technical nature of industrial and service operations which require highly-trained people who in turn want good education for their children — as good or better than they had. Employers also want the services of education, basic and higher, to support the upgrading and retraining of employees so that they can stay on top of their field or profession with resulting profits to their employer.

Here are just some of the indications of the increased attention being given to education by the decision makers in industry:

1. General Electric Company looks at these features of the educational system in reaching decisions about the adequacy of a new site:
   a. Does the system have a long-range plan for providing necessary educational facilities?
   b. How well does it pay its teachers?
   c. What is the ratio of pupils to teachers in the school?
   d. What are the relationships between the teachers and the community; is the teacher a respected member and welcome in community life?
   e. What is the educational background of teachers?
   f. What is the quality and breadth of the school program?
   g. What percentage of the graduates of the schools go on and enter some type of higher-education institution?

2. The Celanese Corporation has a similar list of criteria but also wants to know whether there is a higher-education institution (at least a junior college) within easy reach of the areas where their employees will be living.

3. Another indication of the increased attention which industrialists are giving to education is evidenced by the Tenth Annual Site Selection Handbook, an international guide to industrial planning and expansion issued by Industrial Development and Manufacturers Records. The 1966 edition contains an extensive listing of the educational offerings and attainments of the various states.

4. Many companies are making direct efforts to upgrade the schools in localities where they have operations:
   a. Corning Glass helps high-school teachers in the 18 towns where this company is located to attend summer school to advance their knowledge of subjects they teach;
   b. International Paper Company provides direct aid to 26 school systems that educate the children of their employees and much of this goes into sending teachers off for special education opportunities; and
   c. the General Electric Company played a major role in improving the Louisville Public Schools and their program of summer fellowships in science and mathematics for high-school teachers is well known.

All corporations do not give as much attention to education but many do, more do every day, and many more could.

The quality and quantity of education obviously contributes significantly to the economic well-being as well as the cultural quality of the community or the state. It takes time even when the quality of education is present to have it recognized by the people who make decisions for the businesses and corporations in our economy. A state which has been slow in developing both quality and quantity in its educational programs has to move fast and work hard, and it has to take risks too.

Of course, education can't make its ultimate contribution to economic progress unless its products are used and its services retained. In the state of Maine it would appear that local industries have not tried very hard to get the help — people and advice — they need; nor is there evidence to suggest that the higher-education institutions have been aggressive enough in trying to be helpful to industry. Our consultants report that:

1. Maine industries are accused in the newspapers of not hiring graduates of the vocational-technical institutes.

2. The state of Maine's plan for vocational-technical education makes advisory committees of local labor leaders and employers optional — most states require them and give them a strong and active voice in determining programs.

3. In 1965 the Northeastern Research Foundation in its report, *Planning for Development in the State of Maine,* made a special point of the fact that the president of the University of Maine should be brought into the planning of the state's economic development. We think this is an obvious necessity; to date nothing has been done.

4. There is a recognized need for better communication and cooperation between the state's Department of Economic Development and the University of Maine.

5. There is a serious absence of graduate programs in science and engineering for the benefit of the employees of manufacturing plants in the state's southern industrial center, a service almost indispensable to science-based industries in their effort to recruit and upgrade profes-

sional personnel. It has been reported that many employees find it necessary to commute to Boston in order to continue their graduate work.

6. While the university has given good service to the paper and pulp industry, scientific and technical services generally fall short of the requirements of other industries with growth potential such as fishing, textiles, wood products, boot-shoe manufacturing, or for assisting the state to attract or develop new industries.

In its report, *Planning for Development in the State of Maine,* the Northeastern Research Foundation also noted that:

> "Research activities in a number of fields are now conducted by public and private educational institutions, by private firms and organizations, and by state agencies. There is an obvious lack of any coordinated or integrated approach to these efforts. To date the state has exercised no function in finding a solution to this problem, though any comprehensive plan for Maine would attempt to do so."

We agree with this observation and we also agree that action should be taken. One possibility is a research center which many regions and areas are establishing as a source of ideas and procedures for regional industry and commerce. These are not degree-granting centers but service centers staffed wholly or in part by faculty from higher-education institutions and directed by full-time personnel knowledgeable in research and persuasive in selling the nonprofit services offered. There are a number of such centers in operation; for example, the Stanford Research Institute, the Purdue Research Foundation, University City Science Center in Philadelphia, the Graduate Research Center of the Southwest, the Research Triangle in North Carolina, the Illinois Institute of Technology Center in Chicago, and the Mississippi Research and Development Center.

Although the operations of these centers vary considerably, their contribution to the improvement of higher education and the area's economic development is increasingly clear. The few full-time staff members of such a center supplement the faculties at existing institutions and contribute to the output of advanced degrees in the institutions in their area. They are available for consultation and research to the higher-education institutions, assist with faculty development in these institutions, help bring outstanding doctoral candidates to the local educational institutions and improve the state's reputation for scholarly and advanced work.

What can be accomplished by such a center? A properly-managed center if operated — say in southern Maine — could:

1. Serve to strengthen existing institutions of higher education through:

   a. attracting leading scholars to the area who could augment faculties of cooperating institutions;

   b. assisting in the expansion of graduate and postdoctoral programs of cooperating institutions;

   c. providing special laboratory and other facilities for cooperating institutions;

   d. stimulating and upgrading existing faculty through a well-planned program of symposia and through exposure to both permanent and visiting staff attached to the center;

   e. identifying and encouraging promising students to work for advanced degrees at cooperating institutions;

   f. providing rewarding consulting assignments to faculty members of the higher-education institutions; and assisting in attracting new faculty and in retaining existing faculty members, as the area's reputation grows for research leadership;

   g. assisting existing institutions to undertake mutual support programs, and to gain additional support of industry, government, and the community generally.

2. Serve as a catalyst to help bring all significant forces in the region together in a common cause which could lead to similar regional efforts to solve common problems.

3. Serve to help stop the "brain drain"; the erosion of especially-talented technical manpower from the state.

4. Serve to help build up local industry and research, through direct participation in center activities (such as research, predoctoral and postdoctoral training, symposia, and consulting), and by making the Portland area and southern Maine generally increasingly attractive to highly-trained scientists, engineers, and others needed by industry.

5. Provide both consulting and applied research capability to assist

with problems of industry and government in the state of Maine and in other New England states.

6. Serve to help improve the social and cultural environment with additional favorable effect on the entire region.

7. Serve to attract substantial new research funds to the area, including those of state government and industry, and especially those of the Federal government.

Another idea that is being tried in some states is the "science foundation." New York, Louisiana, Kansas, Mississippi, and Georgia have established such foundations to support and strengthen a diversity of independent research efforts by higher-education institutions and independent research groups. This approach has been most successful in states having a number of strong research-oriented higher-education institutions. Such foundations:

1. Can contract for research on behalf of the state with private or public research groups, especially higher-education institutions.

2. Construct facilities for lease to nonprofit organizations engaged primarily in scientific, economic, and technological research, and other research in the public interest.

3. Support graduate-level research, graduate fellowships, and distinguished professorships.

4. Provide grants for computers and other equipment and for library resources to encourage and support graduate-level instruction, particularly in the physical, life, and social sciences, and in technology.

5. Help the higher-education institutions obtain funds for matching Federal research monies and for supplementing Federal programs.

6. Assist corporations and institutions to work out cooperative arrangements which permit industrial employees to spend periods of time on university campuses for graduate and even postdoctoral work.

7. Foster interchange of faculty and industrial employees, on a temporary basis, to provide the universities with persons of special compe-

tence in certain fields, and industry with certain specialized research talent.

As useful as the foundation approach has been in the states where it has been tried, the Consultant Panel does not believe that the state of Maine has the diversity of research capabilities which warrant the establishment of a science foundation at this time.

With respect to an independent research and development center, the Consultant Panel does not know, nor does anyone at the moment, whether Maine industries would use such a center if established. There is interest among the leaders of the larger firms in Maine in such services but we were not able to determine whether a commitment to support such services actually exists, a commitment which could run into hundreds of thousands of dollars in a short period of time.

Our consultant has observed that:

1. While business leaders in Maine have a good understanding of the ultimate economic and social benefits of a first-rate higher-education system in the state, like their counterparts elsewhere, they have limited perspective of:
   a. the relationship between graduate education and industrially-related research and development;
   b. how educational institutions evolve; and
   c. the difference between specific course offerings to meet the specific needs of a company or industry and a sustained program of graduate education and related research.

2. There is general agreement among industrialists that the possibility exists that without more supporting research in Maine many current business activities in the state might become submarginal or less profitable in the future. There is also a common interest in strengthening and increasing the graduate work of the University of Maine as the best first step.

3. Formally-organized research and development is a highly-speculative, expensive, and fiercely-competitive activity. A successful research and development center cannot be put together overnight. A formally-organized research and development center in Maine could be successful only if personnel and space can be provided or are available, and if commitments — contractual and philanthropic — can be assured.

4. Feasibility is based on a lot of hard work by highly-competent people plus wholehearted support and allocation of resources by the educational institutions plus industrial interest and commitment. Although Federal funds are available, successful proposals have to have adequate capability backup in existence and they take considerable time to negotiate.

The Consultant Panel believes that the current level of graduate programs, particularly in engineering and the physical sciences, and the serious lack in Maine at present of technically-trained support staff (which usually comes from two-year technical institutes or community colleges) to back up research and development work for the science-based industries would make it extremely difficult to set up in 1966 a separate research and development complex or center in either Portland or Orono. For the next five years resources of both energy and funding would be better spent on upgrading and increasing graduate-level offerings in a variety of fields under the University of Maine — at Orono and at Gorham. This is true whether consideration must be given to establishing foundations for a medical school, or the "retreading" possibilities for engineers and scientists in industry, or to increasing sponsored research contracts or grants from government and corporate sources.

Further study should be made of the feasibility of establishing a wholly-independent research and development center. The best money to spend immediately would be for an in-depth technoeconomic survey and evaluation to determine the actual need and policy level commitment for research and development in the Portland area. (A recent study in Rhode Island supported by Federal Area Redevelopment Administration funds resulted in the creation of the Rhode Island Design Research Institute, which is receiving much of its early support from Federal funds.) Not only should the potential industrial need and use be investigated but a careful evaluation of faculty resources available in private institutions in southern Maine for participation in such a center should be examined at the same time. We believe the Associated Industries of Maine would welcome such a study. In a recent letter to the Academy their executive director indicated that:

> "After considering the types and sizes of industry here we feel that only a competent survey in depth and with at least tentative commitments would disclose the extent of available tangible support of any program."

During the next five years the statewide University of Maine system can make the greatest contribution to Maine's economic development if:

1. In organizing new technical and vocational programs in the university community centers extensive use is made of local advisory committees of business, labor, and industrial leaders to advise on programs.

2. The president of the university is consulted regularly by state government officials who are charged with improving the state's economy.

3. Sizeable state funds (well above the minimum required by Federal regulations) are made available to support the work of the University of Maine's Department of Industrial Cooperation in its administration of the State Technical Services Act of 1965 providing through this program for regional centers and the conduct, from time to time, of conferences and seminars and the publication of materials related to industrial management and development. The university will also require funds to conduct research to back up the basic-information program required under this Federal program.

4. Immediate attention is given to strengthening graduate programs in forestry, chemistry, physics, zoology, engineering, and in the marine sciences in order to bring these programs to a status and level of support now enjoyed by work in agriculture and the pulp and paper field.

5. Several topflight people are added to the university faculty at levels of compensation well above the present scale, with the understanding that research and publication in areas which are important to the state's economic growth and development will be an important part of their assignment.

6. Faculty consulting within Maine is encouraged and made attractive by internal university policy.

7. The university can achieve more coordination for these activities and for a number of others already under way.

The university's Board of Trustees should recognize, the Consultant Panel believes, that in the absence of a research and development center the need is no less in Maine for the services that such a center might provide. The university is now making real progress through the efforts of the Department of Industrial Cooperation, the College of Technology,

the College of Business Administration, the Cooperative Extension Service, the Continuing Education Division, and the Law School to assist the economy of Maine in realizing new levels of achievement. Efforts of these kinds must grow and be expanded; in fact, it is efforts of just these kinds which a center attempts to provide and coordinate in states where there are a diversity of higher-education institutions. However, there is always the possibility that such a diversity of efforts, as good as they are now, could be even better if there was a clear university policy which sets all of them in the context of Maine's economic development, and assures their coordination within the university and throughout the state toward this goal. Therefore, the Consultant Panel recommends that the trustees establish within the university a University Development Center headed by a vice president which would be responsible for:

1. Providing advice and guidance concerning research requirements to all agencies, institutions, and organizations pursuing economic development in the state of Maine.

2. Involving the private colleges in Maine in cooperative efforts to strengthen the state's economy. Bowdoin College for example, is in the process of reorganizing its Bureau of Municipal Research and its Center for Economic Research into a single entity. The University Development Center should work closely with this agency at Bowdoin as they both seek to improve the state's economic situation.

3. Undertaking selected applied-research projects with a small permanent research staff, augmented by specialists from departments of the university and the private colleges, government agencies, and private firms assisted by graduate students.

4. Maintaining and disseminating information needed by various development agencies and organizations throughout the state, by industrial and business firms, and by the various departments of state government.

5. Providing a computer facility for use by all educational institutions, government agencies, and business firms.

6. Maintaining current information on research projects in the state, on scientific and research personnel, on research expenditures and sources of funds, on research programs of agencies and institutions out-

side the state which bear upon Maine's development, and publishing annually a catalogue of this information as a research clearinghouse for the state of Maine.

7. Supplementing the extension activities of the university by making staff members of the University Development Center available for counseling and extension services throughout the state.

8. Assisting institutions, organizations, and firms in obtaining research services from other sources, in drawing up research proposals, in obtaining research grants and contracts, and in other aspects of research management.

The Consultant Panel believes that this university center should have an advisory committee which would consist of labor leaders and industrialists, government officials, and presidents of one or more of the private colleges in the state.

The state of Maine is now working on a master plan for economic development. This is a commendable undertaking. However, an appropriate plan will be difficult to develop and carry forward without a close and continuing working relationship between higher-education institutions, persons in private enterprise, and persons in government development work. We have been told that the university and some of the private colleges have been asked to help in the development of such a plan and we believe this is an important step forward toward strengthening the state's whole economy.

While public universities have a major responsibility for contributing to the economic and cultural growth and development of their sponsoring states, the potential for helping in regional, national, and international development cannot be overlooked. It is increasingly evident that by sharing in development efforts beyond state borders universities are significantly strengthened and so too is the state in which they are located. The University of Maine has resources and know-how in a number of fields — forestry, pulp and paper technology, fisheries, sanitary engineering, local-government administration, potatoes and poultry — which would be useful in international-development work. The Consultant Panel thinks that the university should seek a modest number of overseas-development assignments on the belief that through such experiences the university's ability to serve the state of Maine will be enhanced.

HIGHER-EDUCATION FACILITIES IN MAINE*

If the decisions are made and the actions taken which we have recommended in this report, higher-education enrollment in the state of Maine could more than double in the next 10 years. This possibility means that during the next 10 years the public and private higher-education institutions in the state of Maine must try each year on the average to accommodate 3,000 more students than the previous year in full- and part-time undergraduate and graduate oncampus and offcampus programs which have yet to be designed, the faculty for which has yet to be hired, and programs to be devised. Furthermore, many of the facilities — libraries, classrooms, laboratories, student centers, faculty offices, dormitories, dining halls, student unions — needed to support the total program have yet to be planned and built.

If higher-education construction is viewed as a long-range investment, its cost, compared to the cost of providing instruction and research, does not loom large. Indeed, for most academic buildings the original cost is repeated approximately every four years in the cost of conducting the programs in it. Over the 60-year life of a well-planned, well-constructed building the cost of construction may, according to the Educational Facilities Laboratories, average out at less than one-fifteenth of what will eventually be spent on what goes on in the building, in educational programs and research. To put it another way, the cost of construction of an educational building may be as little as 6 per cent of the total cost of the educational program offered in the building during its lifetime. Therefore, it behooves higher-education institutions to seek quality in the original construction, to plan programs carefully, and, if necessary, to pay higher initial costs to achieve facilities which, over the life of the building, will maximize the productivity of the other 94 per cent of the expenditure associated with it.

*This chapter, with additional supplementary materials, has been presented as a special report to the Maine State Commission for the Higher Education Facilities Act of 1963 in fulfillment of a separate contract between the Academy and the Commission.

The Academy asked all the public and private higher-education institutions in the state of Maine to study and report on the extent, condition, and use of their present educational and auxiliary facilities and their needs and plans for new construction during the next five years. While oncampus surveys, institution by institution, would have been preferable to asking each institution to establish its own needs, the scope of this study did not permit this more thorough approach.

These studies by the institutions were, of course, made without knowledge of what the Consultant Panel's recommendations would be with respect to organization or future institutional roles. The completed reports received plus various summaries of them, for each institution reporting, have been made available to the Maine State Commission for the Higher Education Facilities Act of 1963. From the reports received and the comments of our consultant, the Consultant Panel observes that:

1. In the fall of 1965 about 75 per cent of the assignable square footage in the buildings housing the classrooms, libraries, and laboratories used for instructional purposes in Maine higher-education institutions was generally of good quality requiring, over the next 10 years, only normal maintenance to assure continued utilization. However, most institutions reported that some facilities will require minor or major remodeling and in a few instances plans have been made to eliminate some facilities presently being used because of their location, condition, or age.

The completed and usable reports received from 20 of the 25 institutions in this study show that in nine institutions there is needed remodeling or replacement of 30 per cent or more of the assignable square footage presently used for instructional purposes. Reporting such needs were:

a. Aroostook State College, where over 40 per cent of present assignable area in academic facilities requires remodeling or elimination;

b. Farmington State College, where over 30 per cent of assignable area in academic facilities requires major or minor remodeling;

c. Washington State College, where over 50 per cent of the assignable area requires minor remodeling;

d. St. Francis College, where 30 per cent of assignable area

presently being used is not part of the college's long-range plan but may be used for at least 10 years;

e. Thomas College, where 40 per cent of assignable area presently being used requires minor remodeling or replacement;
f. Westbrook Junior College, where over 90 per cent requires extensive remodeling or replacement;
g. the University of Maine at Orono, where a total of 32.5 per cent of the present assignable area requires remodeling or replacement — 24 per cent requires extensive remodeling, 3.5 per cent minor remodeling, and about 5 per cent requires replacement;
h. the Northern Maine Vocational-Technical Institute, where all the present facilities are reported to require remodeling or replacement; and
i. the Southern Maine Vocational-Technical Institute, where 80 per cent must be replaced or remodeled.

2. Dormitory and feeding facilities of the higher-education institutions in Maine are of generally better quality than are the academic facilities. However, in contrast to academic facilities (which appear in many cases to be underutilized), dormitory and feeding facilities are today filled to capacity and there is little likelihood that additional students could be accommodated in existing facilities at either public or private institutions unless a decision was made to exceed their designed capacity.

Though a great deal of detailed data about each institution reporting has been supplied to the Maine State Commission for the Higher Education Facilities Act of 1963, it should be noted that:

a. there is some indication that the capacity of the dormitories at Orono is being exceeded, at least at the beginning of the year; and
b. Maine Maritime Academy is presently housing its freshman and sophomore classes on their training ship which is on loan from the Federal government; the uncertainty and the unsatisfactory nature of this arrangement suggests that adequate dormitories to house these students should be constructed.

3. Utilization of available space in the academic facilities of higher-

education institutions in the state of Maine, as measured by the "capacity/enrollment ratio", is not high at the present time. For example:

a. capacity/enrollment ratios in Maine today range from 172 to 1,285 with a median of 431;

b. for comparison purposes, in the state of New York the ratios for public and private institutions range from 95 to 606 with a median of 310; and

c. institutions with ratios of more than 300 can usually, our consultant reports, make better use of their existing space by various practices some of which are discussed later in this report.

4. Another and more valid indicator of the extent of space utilization is the "space factor." The space factor indicates the assignable square feet of space available in a classroom or laboratory per student clock-hour taught in this space. The advantage of the space factor is that it combines into one factor the number of hours the room is scheduled, the size of the student stations in the room, the percentage of stations which are actually used when classes are scheduled, and the number of student station hours taught in the room. For example: a room or laboratory would have a space factor of .83 (the classroom space-utilization standard used in the California, Illinois, and Oklahoma master plans) when each student station averaged 16 square feet, the room was used 32 hours per week, and on the average 60 per cent of the student stations were being used when the room was scheduled (the lower the number, the higher the utilization). Our consultant reports that today in Maine higher-education institutions:

a. classroom space factors for public higher-education institutions range from 1.07 to 6.77 with a median of 1.53;

b. space factors for classroom use in private higher-education institutions range from 1.01 to 2.82 with a median of 1.32; and

c. in the state of New York the median space factor for community colleges is .62; for private two- and four-year colleges it is 1.2.

5. With respect to the effective use of space in laboratories, the reports

again indicate that the utilization in Maine higher-education institutions is considerably below that expected in other states where studies have been done and standards have been established. For example:

a. space factors for laboratory use in public higher-education institutions in Maine range from 3.22 to 13.03 with a median of 7.4;
b. in private institutions the range is from 3.33 to 30.68 with a median of 13.10; and
c. in Illinois, California, and Indiana the space factors used as standards for allocations for new laboratory space for public institutions range from 2.9 to 4.6.

6. In the opinion of many experts today a laboratory space factor of 3.0 is appropriate for liberal-arts or teacher-education institutions. In universities, with offerings in technical and agricultural fields, a laboratory space factor of 4.5 is considered reasonable. Although there are exceptions, it appears from the data we were able to assemble and analyze by these two different methods that the utilization of existing academic space is not as high as is being achieved in other states by public and private institutions and, we would suspect, not as high as the institutions in Maine would themselves like to see it.

7. The greatest limitation to the better utilization of classroom and laboratory space in higher-education institutions in the state of Maine at the present time is the extent to which institutions are attempting to offer diversified programs with very low enrollment. Today, all but four institutions have an enrollment under 1,000, a figure which is generally considered the necessary minimum in order to offer a diversified quality liberal-arts or teacher-education program with any reasonable chance of achieving good utilization of space.

As has been stated elsewhere in this report it is the Consultant Panel's belief that enrollment in higher-education institutions in the state of Maine could more than double during the next 10 years if decisions are made promptly to follow the various recommendations we have made. The present situation with respect to the condition of facilities and their utilization suggests that many of the institutions have an unusual opportunity (especially if efforts are made right now to better utilize present space while increasing enrollment) to engage in more careful planning

for future facilities and for their program use than has been possible in the past.

While on the surface and in the aggregate the urgency for substantial expansion does not seem evident, a rapid increase in enrollment, which is likely especially in public institutions, could alter very quickly what appears to be in the year 1965-1966 relatively inefficient use of existing academic facilities in many of the institutions. Of course, a number of institutions have indicated that a substantial percentage (over 30 per cent) of their academic facilities require remodeling. In the process of remodeling, improvements can be made that will enhance the efficiency with which such facilities can be used.

8. The institutions have tentative plans to undertake considerable construction during the next five years. We asked the institutions to report their plans (which in detail have been turned over to the facilities commission) for improving and increasing academic and auxiliary facilities through 1970. The reports received indicate that:

a. the public higher-education institutions presently plan to spend $57 million on new construction during the next five years — $29.1 million on academic facilities, $23.4 million on residential buildings, and $4.5 million on other facilities; and

b. private institutions plan to spend about $27 million — $8.6 million on academic facilities, $13.9 million on residential buildings, and $9.3 million on other facilities.

We asked our consultant to comment on these plans and to suggest how the projected construction might be financed if maximum use was made of Federal and other funds. In his memorandum to us our consultant noted that most institutions, but especially the private ones, are somewhat indefinite about these short-range plans and where the capital is to come from to support them, suggesting that the institutions could make better studies of their needs and on a more formal and continuing basis than the time for this study permitted. With respect to financing the construction of academic facilities, he reports that:

1. Federal grants to Maine under Title I of the Higher Education Facilities Act of 1963 might during the next five years total at least $12.5

million (a conservative estimate)*, which to be fully utilized would require matching funds of $25 million for a total possible expenditure of $37.5 million. The University of Maine will also be eligible for grants under Title II of the Higher Education Facilities Act of 1963 to enlarge graduate facilities. Actually, the institutions which reported to us plan to spend just about this amount for academic facilities during this period.

2. Matching funds ($25 million) would have to be financed by Federal loans, state appropriations, private loans, gifts, and grants.

3. Of the $25 million required for matching, it would be possible to get almost $16 million of the total amount in Federal Title III loan funds at 3 per cent interest, which is a lower rate than that of any other loaning agency at the present time.

4. The remaining 25 per cent (about $9 million) would have to be provided by state appropriations to state institutions and, in the case of the private institutions, by private loan funds, by gifts and grants from individuals, or from other resources which the institutions may have available.

With respect to residential and auxiliary facilities, our consultant noted that:

1. The institutions plan to spend a total of $37.3 million for residential facilities with public institutions accounting for $23.4 million and private institutions $13.8 million. The public institutions in this case plan to finance residential facilities through revenue bonds provided by the state of Maine. The private institutions indicate that they will be able to finance their residential facilities through a number of sources which include the use of gifts and grants, investment funds, and the Housing and Home Finance Agency College Housing Program.

2. It should be noted that the Federal H.H.F.A. College Housing Program provides loans for the construction of residential facilities, dining halls, and student unions at 3 per cent interest. This percentage is less than any other comparable state or private loan fund available to insti-

*Congress may authorize $453 million in fiscal 1967, $700 million in fiscal 1968, and $900 in fiscal 1969. There is some support also for changing the Title I grant formula so that four-year institutions could get up to a 50 per cent grant and two-year institutions up to 60 per cent.

tutions of higher education at the present time. In most cases, it is indicated that the residential facilities will be provided by the use of self-liquidating funds derived from fees charged to students for room and board.

3. A small number of auxiliary buildings are included in the long-range plans. These are student centers, chapels, and other buildings which are not directly related to the academic program or to the residential facilities. In most cases, these facilities will be provided by gifts and grants to the institutions from alumni and other sources. The student centers, however, may be financed using a combination of Housing and Home Finance Agency loan funds and private gifts.

4. In summary, it appears that the long-range planning of capital construction by institutions in the state of Maine is quite indefinite and that most institutions need to make studies of their needs on a much more formal basis than has been the case up to the present time. The need for funds projected, however, appears to be a need which can be met through good use of Federal grant and loan funds, modest state appropriations (for the public institutions), and revenue bonds either through state authorities or through private lending institutions.

In a brief summary of this kind it is impossible to reflect adequately all the problems and plans of each institution. Neither is it possible to put complete confidence in the data that was reported. Many of the institutions had never undertaken a study of their facilities; in many cases institutional records are out-of-date or incomplete, as were a number of the reports submitted. Consistency in institutional evaluating and reporting of space conditions and use is of paramount importance in such a study, but the lack of experience of the institutions and the limited time for the study made such consistency impossible to achieve. Of necessity, the institutions stated their plans in terms of their present view of their role and scope without benefit of the Consultant Panel's recommendations for the future. In spite of these limitations, there is in the state of Maine today, as a result of this study, more data, and in the institutions a better introduction to the need for and concepts of long-range facilities planning than is the case in the majority of the states in the nation.

If there can be any one over-all conclusion to this part of our total study, it is that the individual institutions in the state of Maine, collec-

tively and singly, could be greatly benefited by a continuing series of management studies and seminars aimed at acquainting presidents, deans, business managers, and faculty with the latest ideas and practices in institutional management, and in academic programming and its relationship to facilities planning. Such an undertaking could be a valuable intial effort by the proposed Maine Higher Education Association, aided by outside consultants.

Elsewhere in this report the Consultant Panel has made a number of detailed recommendations concerning the future role and location of public higher-education institutions in the state of Maine. In these recommendations we have specified that:

1. The University of Maine should assume statewide responsibility for all public higher education and within this statewide university system:
   a. Portland, Auburn, Augusta, Machias, Bangor (Dow), and Fort Kent should have university community centers offering terminal and transfer general, technical, and vocational programs for largely a commuting population;
   b. the vocational-technical programs offered at South Portland should be moved to the Portland campus and the South Portland facilities sold for industrial use;
   c. the vocational-technical programs developing in Bangor should be moved to the Dow campus and be combined with the technical programs to be moved from the Orono campus;
   d. the university campus in Presque Isle should be on the site of the state college to which the programs at the Northern Maine Vocational-Technical Institute should be moved as soon as possible;
   e. four-year undergraduate and graduate programs offered in Portland should be moved to Gorham where additional graduate and undergraduate programs should be developed;
   f. consideration should be given to moving the law school to Gorham; and
   g. the Orono campus should increasingly restrict its freshman and sophomore enrollment and take in an increasing number of students as transfers from the university community centers, concentrating more of its work at the advanced undergraduate and graduate level.

The Consultant Panel is not unmindful that in making recommendations as extensive as these, major changes will be required making obsolete the present program and facility plans and projections of the public institutions. Perhaps this is so, but we believe that the arrangements proposed promise a more meaningful, efficient, and exciting public higher-education system for the state of Maine than if present arrangements were simply projected into the future. The Consultant Panel also believes that with the consolidation of facilities and the development of a single structure for public higher education, better plans for the future are not only possible but probable.

We can at best only estimate what the capital costs of effecting these public higher-education arrangements might be over the next 10 years. If the decisions are made to accept these recommendations, we would expect that the University of Maine could within a year develop rather good estimates. Assuming that all needed construction of academic facilities (including classrooms, faculty offices, gyms, libraries, research space) is undertaken on the basis of 120 assignable square feet per full-time equivalent student at an estimated 10-year average construction cost of $30 per square foot, high-quality academic facilities could be provided for about $100 million.

In residential and dining facilities — assuming a reduction in the number of resident students in the public institutions from the present overall figure of 62 per cent to 40 per cent because of the increased availability of program and facilities and transportation arrangements — spaces would be needed for 2,400 students at an estimated cost of $5,000 per student or $12 million. Remodeling and renovation costs would be in addition. Assuming that 600,000 square feet should be renovated during the next 10 years at an average cost of $12 per square foot, these costs would be just over $7.8 million. While these are very gross figures and the possibility of error is great, they suggest that for about a total of $120 million in capital costs — if imaginative plans are developed and good space utilization is achieved — the state of Maine could have within 10 years a modern plant for its statewide system of public higher education.

These costs might be reduced considerably if careful planning was done and maximum utilization of space could be achieved. There are many excellent ways to help reduce the cost of construction, to enhance the short- and long-range usefulness of the facilities and to improve the

use of existing space. (Many large institutions have developed special offices to handle planning, scheduling, and other arrangements designed to increase the use of space.) The Consultant Panel believes that the University of Maine, in carrying out its statewide responsibilities for all public higher education, must use these approaches to the fullest extent possible; it should do no less than its counterparts are doing throughout the nation to assure quality education at the lowest possible cost to the taxpayer. Among the developments and approaches which the university should examine and, where practicable, apply are:

1. *Utilizing standardized building components in the construction of academic buildings.* The Educational Facilities Laboratories (a Ford Foundation-supported organization) has sponsored experiments and studies in California, Ohio, Pennsylvania, and in other states on the use of standardized building components for structure, heating, ventilating, air conditioning, lighting, ceilings, and partitions. These standardized components make it possible to build better buildings for schools and colleges more economically and more rapidly, and still with great freedom of exterior design. Not the least of its virtues is the forestalling of educational obsolescence and the premature abandonment of a building which is still structurally serviceable.

In Maine and throughout New England public higher-education institutions and public elementary and secondary schools face large bills for building in the next two decades. It would be useful to investigate whether interstate cooperative efforts in the use of standardized building components could be achieved. Considerable savings to the taxpayers of these states would not be the only by-product; a whole new industry could be created with possible benefits to the economy of each of the states.

2. *Increasing enrollment without increasing space.* It is amazing what an institution of higher education can do when it is forced to look for ways to improve the utilization of space. It is an axiom that a four-year institution of higher education with less than 1,000 enrollment will have a difficult time making good utilization of academic space.

3. *Equating class size and room size.* An institution must look at the size of its classes. On the basis of the information available in this study, it appears that the average classroom in Maine has twice the number of chairs necessary to seat the average class.

4. *Equating stations' size and the cost of square footage.* Few institutions know how much space the function of a student station in a given class or program requires. For example, a seminar room with tables and chairs can be planned for less than the common standard of 25 square feet per student station. Planners should think twice before designing laboratories with both laboratory and classroom type space for occasional lectures. The laboratory generally will not be scheduled as a classroom. It is possible to design a laboratory table so that each student may see the lecturer or audio-visual screen, and take notes without providing separate space for tablet-arm chairs.

5. *Designing an even schedule.* Utilization can be improved immensely by attempting to use the total hours available per week for classes on an even basis, whether it be 30, 35, 40, or 65 hours per week. That is, schedule classes evenly throughout the day and the week. An hour at 4:00 P.M. on Friday should receive as much use as an hour at 10:00 A.M. on Monday, or 11:00 A.M. on Wednesday, or 1:00 P.M. on Tuesday, etc. Stop scheduling on a declining week and providing days with afternoon siestas. Use the evening hours, too.

6. *Using the hour and a half class period.* A curriculum with many three-hour courses can use the 80-minute period to good advantage. Some faculty will complain about the length of the class until they realize that a class scheduled from 8:00 A.M. to 9:20 A.M. on Tuesday and Thursday actually produces 160 minutes a week and the 9:00 A.M. Monday, Wednesday, and Friday class period provides 150 minutes.

7. *Scheduling laboratories in the morning and classrooms in the afternoon.* Laboratories and classrooms can be scheduled in both mornings and afternoons. The traditional afternoon laboratory is becoming extinct. Schedule evenly and fairly.

8. *Eliminating the privileged hour.* Many institutions reserve one hour a week (such as 10:00 A.M. Wednesday chapel service or convocation) for an activity for the entire institution. Do not take these hours out of the heart of the day; put them at the beginning or end of the day and schedule four hours of classes around them.

9. *Scheduling classes on the half-hour rather than the hour.* A stu-

dent will rebel at a 7:00 A.M. class, but can at least be coerced into a 7:30 A.M. class. This schedule will add an hour to each day. Thus a 7:30 A.M.-4:30 P.M. day gives nine hours for scheduling against the 8:00 A.M.-4:00 P.M. schedule of eight hours.

10. *Scheduling through the noon hour.* Most institutions serve noon meals on the cafeteria system. A student with a 11:30 A.M. class can go to lunch at 12:30 P.M. A student with a 12:30 P.M. class can go to lunch at 11:30 A.M. In this way the cafeteria can serve three different shifts of students in the 11:30 A.M.-1:30 P.M. time period.

11. *Projecting course enrollments.* Predicting course enrollments for one year in advance will assist in the development of the master schedule. Then use class size predictions to assign rooms which relate to class size. Faculty are known to be optimistic in anticipating the size of their classes. An administrator or registrar using past experience in class sizes can provide much more reliable projections.

12. *Scheduling small classes in offices.* A class of five or less students can often be taught in a faculty office, or a class with fewer than 10 students may be taught in a conference or seminar room rather than in a formal classroom. Both the student and faculty member benefit from the easy access to the materials available in the office of the faculty member.

13. *Revitalizing the curriculum.* A study should be made of all undergraduate courses regularly enrolling less than 10 students to see if the course should be taught each year, taught every other year, or taught at all. The fewer the courses the larger the class size with much greater opportunities for better utilization of space.

14. *The calendar.* The quarter system, the trimester, or other arrangements make possible a fuller use of the campus throughout the year. Each institution must develop its own calendar. What will work for one institution may, or may not, work for another. But the summer has been wasted in the past. The trimester can increase income while much improving the use of facilities providing the enrollment is adequate.

15. *Using convertible classrooms.* If small classrooms are needed, build them but with a removable wall so that two classrooms designed for

20 students can become one classroom for as many as 50 students should class size change in the future. In such rooms, the wall between two rooms must be nonloadbearing and contain no utilities so that it can be removed in the future.

16. *Using multiple laboratories.* Laboratories for the basic sciences can be designed to serve more than one discipline and multiple courses within one discipline. The required services are provided in the benches and each student is provided with a basket or drawer which he "plugs in" to the laboratory table during his laboratory session with the necessary equipment and elements or specimens. At the end of the laboratory session the student returns the drawer to a movable truck which is wheeled to the preparatory or storage room.

17. *Using partitioned auditoriums and gymnasiums.* A large room used only a few hours a week such as an auditorium, or a large room used many hours a week for a few students can be subdivided into smaller rooms for better utilization by installing operable partitions. The cost of operable partitions has dropped substantially in recent years and their capacity for stopping sound has reached the level of permanent masonry walls. In auditoriums their use can raise utilization from the usual 10 per cent to 90 per cent.

18. *Improving space use through remodeling.* In many old buildings classrooms have been subdivided into offices. As enrollment expands, these old spaces can be remodeled back into classroom space in the heart of the campus and be updated at a low cost to provide better service than improvised offices with poor ventilation, lighting, and no privacy. When a dormitory has become surrounded by academic space, the old dormitory rooms can be converted into office space. This improves the use of space and provides new academic space at a low cost, while new dormitories can be self-amortizing and are more attractive to the student.

19. *Scheduling classrooms by computers.* The St. Louis Junior College District used computers to develop a master plan for classroom scheduling, and estimates that it will save $10 million in construction costs over the next few years through greatly-improved space utilization. Stanford University's computer center was able to obtain a one-third greater room occupancy by computer scheduling of the classes at a high

school in Portland, Oregon (where academic programs have less diversity than could be expected in a junior college). Stanford's program was so successful that 22 schools in the western states contracted for computer scheduling for the fall of 1964. Computer scheduling of classes is also well advanced at Purdue University and at the Massachusetts Institute of Technology.

20. *Awarding college credit by examination.* Students whose education has been obtained through home study, television courses, adult-education courses, or courses offered by industrial or commercial firms or other organizations and agencies not part of an established public or private college or university, should be given appropriate credit if they can pass suitable examinations. Since 1962 the New York State Board of Regents has provided such examinations for teacher certification and for college credit generally. More than 100 colleges and universities in New York now accept the results of these examinations for credit in 22 academic areas as evidence of academic accomplishment. Hundreds of teachers and other students have taken the examinations and the program is considered extraordinarily economical for both the student and the state.

We could find little evidence in Maine which would suggest that institutions were familiar with these many approaches to better utilization of faculty and facilities, let alone examples of serious efforts to apply them, or that such efforts were part of the future plans of institutions. The Consultant Panel believes that the citizens of the state of Maine, who must provide much of the money needed to expand the statewide university system, should expect efforts of these and other kinds in the future, and that they will want also to see evidence that such efforts have been made to provide quality education at the lowest possible cost.

The Consultant Panel believes these additional observations about various types of facilities are in order:

1. *Libraries.* Of all collegiate facilities, the library is undergoing the greatest change. As students are expected to undertake more independent study, as more storable knowledge is produced, as new media for storing and transmitting knowledge are invented, the library grows in size and potential expense. Indeed, unless the various branches and campuses of the statewide university system create a network for sharing library

resources (and possibly open this to the private colleges as well), the cost of supporting libraries capable of serving the needs of all students in the University of Maine, campus by campus, may very well consume money which could be spent on professors or research. With imaginative application of the new carriers of information — tapes, slides, television, and a host of audio-visual mechanisms — and new methods of storage and communication such as the computer, the university should be able to provide excellent library services to all students at reasonable cost to taxpayers.

2. *Laboratories.* Science, too, is in a state of flux. Not only is the subject matter changing rapidly but the lines between the disciplines are fast blurring. Any science building built today will obviously not fit the requirements of even a decade hence. Therefore, there is mounting pressure to design for flexibility and convertibility.

New science laboratories can be constructed to be convertible from chemistry to physics to biology, according to shifting registrations, subject by subject. Conversion can be made quickly from semester to semester and, if necessary, from day to day. A well-constructed laboratory can also be cleared of all equipment to restore the room to conventional classroom use. This is important for colleges offering science below the level of independent research. The laboratory of the future should be viewed as a volume of generalized space made special by its portable equipment. Equipment can be written off through the years as subjects and subject matter change, but the building itself should not have to be written off as unusable before well into the twenty-first century.

3. *College residences.* Colleges have built dormitories for over 300 years and except for improvement in the materials of construction, the dormitory has shown little change through the years. Harold Gores, president of the Educational Facilities Laboratories, in describing this situation, has said:

> "Under the pressure for reducing costs in recent years, the enchantment with cement block has demeaned the dormitory, especially those designed by public bodies, to an inhumane place of nocturnal storage."

Today many higher-education institutions are designing dormitories according to the age and academic status of the occupants. Colleges have suddenly realized that a 17-year-old freshman is vastly different from a college senior or graduate student. Accordingly, dormitories are now

being designed around the age or interests of the occupants, such as the Senior Center at Bowdoin College or the work in California under which, with the Educational Facilities Laboratories assistance, dormitories are being designed so that the interior space is alterable according to the maturity of students assigned to them. To achieve the flexibility desired, a modular system of construction is being used.

Most recently, the private corporations have discovered the American campus as a safe and useful place of investment. Any college or university contemplating new or additional housing today should determine the possibilities of avoiding capital outlay by exploring arrangements with private corporations. From the standpoint of welfare of students and faculty, the concentration of available capital on academic facilities may produce a better college than to have scarce capital diverted toward additional housing.

The image of privately-built dormitories has suffered from the fact that some of the early installations were shoddy. But the quality of design and construction can be dictated by the owner under lease-to-purchase arrangements which guarantee that when the ownership reverts to the college, the dormitory is worth owning.

Many colleges have the land for housing and further, they can guarantee a high rate of occupancy. These two factors are sufficient to entice private capital to fill the need.

Although the job of providing the necessary facilities and equipment for the future of public higher education in Maine looms large, it is not an impossible one. Facilities are an investment and, like any investment, they will only provide a maximum return if they are used to their fullest extent, and planned so that this can be done — today as well as 50 years from now. There are many ways of improving now the use of present facilities and of designing now new ones which will last well into the twenty-first century.

If Maine plans well right now in the context of a cohesive system of public higher education, it is quite probable that over half the cost of these needed facilities can be paid for by Federal grants and another 25 per cent by Federal loans. The state will have to put up its fair share — in appropriations and by assuming some long-term indebtedness — but this could be the most lasting and important investment which the state of Maine will ever make.

THE FUTURE OF TEACHER EDUCATION

PUBLIC higher education must see to it that there are enough good teachers and administrators of the right kinds to staff the public schools. Unless the schools in the state of Maine graduate well-prepared and highly-motivated youngsters, not only will too few of the graduates go on to some type of higher education, but those who do will depress program standards and limit the range of programs which can be offered including those for future teachers. In turn, uninterested and unprepared students in the colleges affect the recruitment and retention of good faculty; a cycle is established which can only be broken by improving the preparation of teachers.

The state of Maine today has a serious shortage of qualified teachers and administrators to staff the public schools. Reports to the Academy from school principals, statements of superintendents appearing in the public press, reports from our consultants, and previous certification practices in Maine lead the Consultant Panel to conclude that the shortage of qualified personnel — those who have, if nothing else, the necessary attitudes, skills, and background to adopt if not invent new curricula ideas and new techniques — is much greater in Maine than just the vacancies which must be filled in the fall of 1966 with temporary emergency licenses.

Underestimating the importance and undersupporting the development of adequate programs of teacher preparation can have adverse consequences for every phase of an educational system. Compensating for prolonged neglect takes time, money, courage, and imagination, and often requires extensive changes in program and personnel.

A variety of conditions today in Maine as elsewhere in the nation, is making effective teacher preparation more important than ever before:

1. There is the challenge of increased enrollment in the schools and the lengthening of the span of education. Children are starting school earlier, and every year a higher percentage is staying to graduate. Most of them

need and an increasing number want education past high school and they should be prepared for it whether their educational goals are general or career-oriented. Just to cope with sheer numbers, administrators and teachers will have to learn new techniques — more productive ways of organizing schools and classrooms, of scheduling, of using subprofessionals, and of applying technological devices to instruction.

2. The knowledge explosion, plus the revolutionary changes in curriculum and in methods that are now under way in general as well as in career-related education, means that teachers, to be effective in the schools of tomorrow, will need a wider perspective and more solid preparation than ever before.

3. The public expects the schools to take responsibility for more remedial and compensatory education, for better services to the emotionally and physically handicapped, for better school guidance, for more dynamic administration, and for basic adult education.

4. In Maine the progressive consolidation of the schools underscores these new challenges, making it imperative that the state prepare, retain, and retrain, not just an adequate number of teachers, but alert teachers of assured competence.

The current pattern of teacher education in the state of Maine, according to the reports of our consultants, has these characteristics:

1. The University of Maine trains about one-third of all the teachers prepared in the state, the five state colleges about one-half, and a dozen or more private colleges the rest.

2. The university's importance in teacher education continues to grow; its historic role as the only public institution training secondary-school teachers has broadened so that each year it also trains an increasing number of elementary-school teachers (once the exclusive province of the state colleges). Furthermore, it provides a substantial amount of the state's graduate education for teachers through oncampus programs (including the state's first doctoral programs, new this fall, in guidance and remedial reading) and through the offcampus services of the Continuing Education Division.

3. The state of Maine, though it has a shortage of teachers, has a far better record than many other states in graduating each year almost as many new teachers as the schools need to fill vacancies and new positions. (Connecticut, for example, must annually recruit half the teachers needed to fill open positions in its public secondary schools from outside the state.) However, programs in teacher education vary widely from one Maine institution to another in quality and substance. As a result graduates differ widely in their degree of teaching competence and in knowledge of their field or specialty.

4. Except for routine regulations issued by the State Department of Education, the teacher-education programs offered in the three different categories of institutions — the university, the state colleges, the private colleges — operate entirely independently of each other, with each category responsible to its own governing board. The state colleges, subject to excessive fiscal, policy, and administrative control by the State Board of Education and various government departments, have an Administrative Board of Presidents, but neither through this vehicle nor any other have the university and the state colleges been able to work together effectively toward the improvement of teacher preparation in the state of Maine.

5. Last year the state colleges were authorized to drop the word "teachers" from their names, and to add programs for secondary-school teachers and thereafter general liberal-arts programs when the State Board of Education considered them ready. Only Farmington and Gorham State Colleges, which have regional and National Council for Accreditation of Teacher Education accreditation, have received approval for secondary teacher-education programs. Of the three other state colleges, each very small, only Aroostook State College seems likely to receive regional accreditation in the foreseeable future.

6. Many Maine school administrators are sharply critical of the subject-matter competence of the teachers prepared by Maine institutions, as well as of the shortage of primary- and elementary-school teachers and of the dearth of candidates in a number of areas which will be increasingly important as the program of school consolidation grows (mathematics and science, foreign languages, guidance, library, girls' physical education, industrial arts, special education for the physically handicapped, for example).

7. School administrators' criticism of certification requirements and over-emphasis on professional courses in the programs of the state colleges suggests that the new state standards that became effective in 1963, making the bachelor's degree mandatory for all teachers, increasing the requirements for liberal education and subject-matter concentration, and reducing the required professional courses to what seems an acceptable minimum, will take some time to show effects. The possibility of continued shortages may mean that for some years exceptions will have to be made to these standards in certifying teachers.

8. Virtually all of the student practice teaching in the state is done in the public schools close to the particular college. A closely-allied problem is the lack in Maine of sufficient school-college coordination of teacher training or effective collaboration of the colleges in school improvement. (A notable exception is the University of Maine's team-teaching project, supported by a Ford Foundation grant.)

9. The exodus of Maine's teachers and of newly-trained teachers to better-paying jobs in nearby states is serious. Of further concern is the fact that of the new graduates a much higher percentage of those from the regionally- and nationally-accredited institutions (Gorham and Farmington State Colleges, and the university) leave the state. It is difficult to see at this time how Maine can fill the void by importing teachers. There is a small but steady reverse flow into the state, but apparently too often these are teachers with limited qualifications or on the verge of retirement.

10. Faced in the fall of 1966 with a shortage of over 500 teachers and administrators, the State Department of Education has created a temporary emergency license which will permit local superintendents to hire persons with only two years of appropriate higher education and to extend these licenses if the holder takes six hours of credit and a more-qualified replacement cannot be found.

This oversimplified picture suggests that teacher education in the state of Maine suffers from a lack of over-all coordination of policy and sufficient depth in program offerings. In an area so important to the structure and substance of education at all levels, the Consultant Panel believes that Maine will wish — indeed must — do better in the future. In fact, the Consultant Panel believes that short of:

a. more imaginative programs in the training of new teachers;

b. an intensive effort to recruit more persons into teaching on a full- or part-time basis;

c. a marked and rapid improvement in teacher and administrative salaries and other benefits;

d. new forms of school program organization and a more enlightened school administration;

e. increased contacts with what is being done elsewhere in the country to improve and strengthen school programs;

f. better utilization of the talents of the best teachers in the state;

g. rapid improvements in working conditions (new schools, better libraries, modern equipment, a better atmosphere for innovation, and teacher aides to help with nonprofessional tasks);

h. greater public understanding of and support for changes taking place in education and respect and appreciation for teaching and teachers generally;

i. greater opportunities for teachers to continue their education and to realize higher levels of responsibility in teaching;

j. more research concerning the unique education problems in the state of Maine; and

k. more dynamic and innovative leadership at the state level for teacher training and school program improvement;

there is every likelihood that the teacher drain will continue in Maine and the teacher shortage in quantity and quality will become increasingly acute with each passing year.

Solving the teacher shortage in Maine is the responsibility of many — the legislature, the local school districts, the State Department of Education and the State Board of Education, the higher-education institutions, and others. An effective statewide program of teacher education for Maine could go a long way to meeting this problem. The Consultant Panel believes that the University of Maine, in carrying out its enlarged responsibility for all public higher education in the state, should oversee all public programs of teacher preparation under a statewide plan developed by the university in close consultation with local school administrators and board members, the Maine Teachers Association, the State Board of Education, and the State Department of Education. The private colleges should be urged to join in developing the plan and putting it into effect.

Under such a plan the University of Maine, in cooperation with the private colleges, would be committed to prepare every year at least the number of fully-qualified teachers and other professional personnel required to meet the needs of the public schools in Maine. The Consultant Panel believes that a comprehensive plan should:

1. Provide for the annual study of future teacher needs in Maine and the projection of such needs at least 10 years into the future.

2. Give special attention to strengthening the resources for teacher preparation — program, faculty, libraries, and laboratories — on those campuses of the University of Maine which will have primary responsibility for the preparation of teachers.

3. Include provisions for recruiting more teacher candidates, by retaining more of the teachers Maine has trained, by the retraining of present teachers and administrators, and by making teaching in Maine attractive to well-qualified teachers trained elsewhere. Appropriate actions might include:

a. providing individual or teams of teachers to service schools which request assistance in program development;
b. having private colleges and branches of the university offering programs in teacher education "adopt" schools each year for the purpose of strengthening programs in these schools;
c. providing special fellowships for experienced teachers and administrators to travel and study on a released-time basis in other parts of the country to see what is being done;
d. providing opportunities for inexperienced teachers and administrators to study at the university or the colleges on a released-time basis with graduate students or paid interns acting as substitutes;
e. arranging for able high-school students interested in teaching to take one or more courses at a college or university campus while still in high school;
f. establishing two-year programs in the university community centers for teacher aides;
g. making extensive use of educational television and also correspondence courses to train substitutes, the offering of credit courses for all persons on temporary emergency licenses, the

offering of other credit courses for regular teachers desiring further work, for the training of part- or full-time volunteers for the public schools, and for the training of adults for entrance into teaching;

h. offering summer programs for able high-school and college students who are interested in *ad hoc* teaching assignments in elementary schools;

i. coordinating the practice-teaching experience of students to support the needs of the schools for teachers in certain subject areas;

j. undertaking a statewide effort to acquaint teachers, administrators, school boards, and the general public with the concepts and procedures of team teaching, including the use of salaried or volunteer teacher assistants and graduate and undergraduate interns, and of ungraded classes, flexible scheduling, and independent study; and

k. establishing on the campuses of the university (or contract with private colleges) a center for intense study of early-childhood development, a center for the intense study of the use of modern programmed visual and sound devices as an intrinsic part of teaching and learning materials, and a center for the study of interdisciplinary programs for the public schools including the development of new materials and the training of teachers.

4. Recommend that the undergraduate four-year programs of teacher education, as offered on the various campuses of the university and in the private colleges, accept as a minimum the recommendations of the 1963 revision of the certification regulations issued by the State Department of Education concerning the balance of courses between liberal and professional education; and that with respect to the university:

a. each campus should offer an integrated two-year program of general education; and

b. students should be selected for entrance into the specialized upper division of teacher-education programs — not all campuses to offer all programs.

5. Recommend that with respect to the continuing-education requirements for teachers (required to continue or raise the level of certification) that postbaccalaureate programs be worked out appropriately for the teacher's particular area of specialization which in most, but not in all, instances would lead to a master's degree and provide that at least one-third of graduate work would be in the arts and humanities, and the social and behavioral sciences. This will require much more post-baccalaureate guidance for teachers than is present in Maine today.

6. Include provisions for the improvement of the student-teaching experience through the development of a strong-working relationship between the state's public schools and its higher-education institutions so that the public schools become active partners in the production of teachers — rather than simply consumers of teachers, as seems to be the case today. Some appropriate steps might include:

a. a requirement that the minimum clinical experience for undergraduates should be at least one but possibly two half years of full-time internship paid by the local school and supervised by a qualified local teacher trained for such an assignment;

b. a series of institutes for supervising teachers, developed cooperatively by the institutions of higher education, designed to prepare teachers in the public schools to assume full responsibility for supervising student-teacher interns; and

c. devising cooperative statewide arrangements for student teaching, thus facilitating the deployment of student teachers all over the state and giving them the chance to experience the schools and pupils of diverse communities.

7. Provide for the encouragement and support of promising experimentation, research, and innovating practices, both in the public schools and in the University of Maine and private colleges preparing teachers, through the recommendations of a state panel on educational research consisting of representatives of schools, colleges, and the general public.

8. Include provision for the awarding of credit toward certification for special work experience, independent study, extensive travel experiences, or a combination of these through special examinations or other means.

The business of preparing teachers for the public schools of the future requires today a close relationship between the institutions of higher education and the schools; it also requires much more teamwork within the institutions themselves. A total institutional commitment to teacher preparation is of the first importance no matter whether many students or only a few are being prepared for teaching careers.

To date, present arrangements for the preparation of teachers have not succeeded in providing enough teachers of the right kinds for the schools of Maine. The Consultant Panel believes that the University of Maine should assume the leadership in training teachers and also in undertaking new kinds of efforts to give teachers higher status and a more stimulating intellectual environment. After all, the university stands to profit the most if the public schools of Maine are adequately staffed by qualified teachers, teaching in an atmosphere conducive to change and progress. The university stands to suffer the most if teacher quality is absent and yesterday's methods and programs are all that the future has to offer.

FINANCING HIGHER EDUCATION IN MAINE

In 1961-62 the public and private higher-education institutions in Maine spent nearly $27 million to provide a variety of full- and part-time education programs, for research and extension services, for scholarships and other student aids, and for the oncampus housing and feeding of students. By 1965-1966 the yearly operating costs (according to reports submitted to the Academy by Maine's public and private higher-education institutions) had increased 85 per cent to just over $50 million, yet degree-credit enrollment during this time increased only 58 per cent. During this same period total higher-education operating costs in the nation as a whole rose from about $7 billion to an estimated $12 billion; an increase of 70 per cent, although enrollment grew only 43 per cent.

There are no reasons to assume that the trend of the last five years of costs rising more rapidly than enrollment will not also be the trend of the future as well. The Council of State Governments in their 1965 report — *Public Spending for Higher Education, 1970* — estimates that by 1970 total educational costs (excluding research, scholarships, and auxiliary enterprises) for public higher-education institutions will, for the nation as a whole, be 2.6 times what they were in 1961-62. In Maine by 1970, the same report indicates, total costs of educational programs in public institutions of higher education may be 3.4 times higher than in 1962, while enrollment may grow about 2.4 times in the same period.

The Academy, in connection with this study, asked all the institutions of higher education in the state of Maine — public and private — to prepare long-range planning reports for the ten-year period ending in 1975-1976.

In their confidential reports to us, the public higher-education institutions reported that:

a. they spent $17.8 million for educational and general purposes during 1965-1966;

b. ten years from now they would need to spend over $39 million

just for education and general purposes, exclusive of scholarships, research, and auxiliary enterprises; and

c. total enrollment during this period would increase 132 per cent.

The private institutions reported that:

a. in 1965-1966 they spent just over $12 million for educational and general purposes;

b. ten years from now they would need to spend about $23 million; and

c. their enrollment would, during the next decade, increase about 52 per cent.

These projections by the institutions were, of course, made with great care but without knowledge of the recommendations concerning program, enrollment, and organization which the Consultant Panel would make. The Consultant Panel's judgment on these projections is that those of the public institutions in total are on the low side, both with respect to enrollment and fiscal projections; and the projections for the private institutions are reasonable for planning purposes in light of their stated plans and objectives.

With respect to the future cost of quality public higher education in the state of Maine, the Consultant Panel believes that because special attention will have to be given to strengthening many aspects of public higher education, costs of providing educational programs and related services will be considerably higher than estimates by the institutions suggest they might be. For example:

1. Faculty salaries at all levels, but especially those for professors and associate professors, must be raised substantially during the next ten years if the University of Maine is to offer the diversity of quality undergraduate and graduate programs and research and public service activities the Consultant Panel has recommended. The American Association of University Professors reports that 95 per cent of the professors, 93 per cent of the associate professors, and 96 per cent of the assistant professors in the United States in 1965-1966 were teaching in public universities with higher average salaries than paid by the University of Maine. In the country as a whole, 55 per cent of the professors teaching in public universities were receiving salaries averaging over $14,000 per year. The Consultant Panel believes that faculty salaries in the statewide University

of Maine system should be brought up to and maintained at the appropriate B level on the association's scale.

2. Libraries in Maine public institutions of higher education are, according to standards of the American Library Association, seriously inadequate for present program offerings. The best estimate the Consultant Panel can make is that these libraries in total have a current deficit of between 300,000 and 400,000 volumes for the present education programs being offered. It has been estimated that for a university to offer a quality graduate program in a number of different fields, in addition to a broad range of undergraduate subjects, library holdings should be at least 1 million volumes. Today the total holdings of all libraries in all public higher-education institutions in Maine does not exceed 600,000 volumes. The possibilities for coordination of library development and usage are tremendous under the proposed statewide University of Maine system, minimizing what must be done to bring libraries up to a satisfactory level.

3. Quality graduate-education programs, especially at the doctoral level (which Maine needs so badly), are expensive — special equipment and facilities are required, fellowships and assistantships must be provided, funds for research must be available, and a lower faculty-student ratio than is characteristic of undergraduate programs must be maintained. Per-student costs of graduate education, of course, vary considerably with the program being studied. Science and engineering programs are far more costly than programs in business, education, the humanities, the arts, and the social and behavioral sciences. Studies in progress in Ohio suggest that $5,000 per full-time enrolled doctoral candidate is a reasonable average yearly figure, which covers the cost of instruction but not equipment, library expenses, or facility needs. In that state, according to the Chancellor for Higher Education, faculty salary costs for doctoral-level graduate work in public universities are being figured at $20,000 per year with a planned student-faculty ratio of about five-to-one.

4. Basic and applied research activities and related development services to government and business and industry is today, as in the past, a seriously-underfinanced aspect of higher education in the state of Maine. Today, the public and private higher-education institutions in Maine spend just over $2.5 million on organized research or just 5 per cent of their total operating budget. In 1961-62 organized research in Maine's

higher-education institutions was 5.4 per cent of total operating expenses. For the nation as a whole in 1961-1962 organized research was 20 per cent of total operating expenses of institutions of higher education, and today it is about the same per cent or slightly higher.

To be average for the nation today with respect to organized research, Maine's institutions of higher education should *in toto* be spending $10 million or about four times what they are now spending for research. Dr. Selma Muskin, who coauthored the report of the Council of State Governments, *Public Spending for Higher Education, 1970,* has said that research outlays which exceeded $2.1 billion in 1965 will reach $4 billion by 1970, suggesting that organized research will be an even larger percentage of total operating expenditures than in the present or in the past.

Although Federal funds support much of this current research effort, Dr. Muskin suggests that states should in the future play a much larger research role than they do today. In a paper before the 1966 College Scholarship Service Colloquium on the Economics of Higher Education, Dr. Muskin said:

> "But state and local purchases of goods and services exceed those of the national government. State and local general expenditures are now running in the neighborhood of $75 billion a year, and we project this total for 1970 at $108 billion. Spending of such sums warrants support of research in far larger amounts than are now committed. We incur a research and development bill of $15 billion a year for defense and military hardware. A research and development effort on the order of one per cent of state and local expenditures would be fully justified, or $750 million a year now and $1 billion four years hence.
>
> "The notion is not new. For many years state governments have turned to the universities in their states for research and professional assistance on problems concerning taxes, expenditures, and economic development. The use of more scientific approaches to governmental operations is forging a stronger link between governments and the colleges so that as full a measure of support for research is provided as is feasible. Through a closer working relation between college and government (a) the issues of public policy that lend themselves to research may be identified, (b) research results relevant to public decision-making may be disseminated more quickly, and (c) communication may be improved between the scientists and the 'rest of the world', and (d) problems in translating scientific findings into workable governmental instruments may be solved. In this process college and university research gains added

vitality and better informational tools, and governments gain easier access to the brain-power available in the college and university.

"State governments can and should join with the national government in fostering public service laboratories in the nation's colleges and universities. The responsibilities for local government essentially fall on the state, for in law the local governments are creatures of the state. But more importantly in our functional federalism, as it has emerged, the state is the only instrumentality with the power to deal with the interjurisdictional problems of the multiple governments that exist within a single economic region — an economic region that we term a metropolitan area."

In the state of Maine the higher-education institutions, especially the university, will have to assume the major responsibility for increasing the amount of research done if there is to be a reasonable research effort in Maine in the future. (Elsewhere in this report we have suggested how this should be organized.) Before Maine can take maximum advantage of the certain growth in research funds from Federal and private sources, the university's capabilities must be greatly improved. This fact should be kept in mind by the university trustees in planning for the future and by the State Legislature when budget requests for research support are made by the university.

5. A diversity of quality post-secondary two-year technical and vocational programs is a seriously-underdeveloped aspect of higher education in Maine. Quality programs of this kind require higher yearly expenditures per student than do two- or four-year programs in business, education, the arts, the humanities, and the social and behavioral sciences. A reasonable estimate is that quality technical and vocational programs, per full-time student, will cost half again as much as programs in other nonscientific, nontechnical fields.

6. The enlarged statewide role the Consultant Panel has recommended for the University of Maine cannot be exercised properly and effectively unless there is an adequate administrative structure established within the university to plan, organize, and supervise the great diversity of responsibilities which a comprehensive public system of higher education entails. Not only will additional top-quality administrative personnel be required but funds for planning, consultants, and special studies with respect to the conduct of university affairs will be especially important.

7. As noted elsewhere in this report, the Consultant Panel believes that enrollment in institutions of higher education in the state of Maine will more than double in the next 10 years and triple in the next 20 years. The university, under its statewide mandate, will of necessity have to accommodate most of this increase; total university enrollment will in 1975-1976 be 2.5 times what total public enrollment is today. This will place more of a challenge on the State Legislature to provide the necessary funds. Past trends in costs in relation to enrollment growth suggest that costs do increase at a faster rate than enrollment and there are no reasons at this time to assume that the future trends will be any different from those of the past. Where special attention must be given to increasing the diversity of program offerings, when special efforts must be made to strengthen the quality of programs, and where additional services must be provided with which there has been little or no experience, costs will certainly be higher than today.

8. The unification of all public higher education under the University of Maine raises the question of the tuition and fee structure which should apply in the future for the education programs offered by the university on its various branches and campuses; to be considered as well is the matter of room-and-board charges. At the present time the university, the state colleges, and the vocational-technical institutes have different tuition, fees, and room-and-board charges, and different policies govern what these charges shall be. The Consultant Panel believes that under the unified system proposed a standard tuition and fee schedule should apply to all programs for instate students (with a separate scale for out-of-state students) and that room-and-board charges should be the same throughout the university system. It will be desirable to phase in any new tuition and fee schedules on the various campuses of the university. Although the Consultant Panel is not prepared to recommend specific figures for tuition, fees, or for room-and-board charges, we believe that:

a. the university's present tuition of $400 is high for instate students in relation to the fees of other public higher-education institutions in the country and in light of student-aid resources and per capita personal income in Maine; and

b. room-and-board charges should be set at a level sufficient to cover the costs of such services including 30-year amortization of facilities used for the housing and feeding of students.

These, then, are the major factors — higher enrollment, better libraries, the need to increase research and public services, the need for greatly-enlarged graduate offerings, the need for higher faculty salaries, the need for stronger technical and vocational programs, and the necessity of added administrative personnel and more planning — which will contribute most significantly to higher operating expenses for higher education in Maine, and heighten the need for a greater commitment of state revenues for public higher-education purposes in the decade ahead. The Consultant Panel believes, in view of these factors, that the educational and general costs of public higher education in Maine will in the next decade increase at a higher rate than indicated in the stated plans of the public institutions, which suggest that costs will be 2.2 times their present level. The Consultant Panel believes that the 3.4 increase projected by the Council of State Governments for the period 1962-1970 provides a better estimate to use for long-range planning purposes for the decade ahead. This suggests that the total education and general budget (exclusive of construction, research, auxiliary enterprises, and student aid) for the University of Maine in 1975 could be as high as $60.5 million.

More scholarships, fellowships, and loans will be required in the future if Maine students are to be able to benefit from the programs offered. With respect to scholarships, fellowships, and loans, the Consultant Panel recommends that:

1. The State Scholarship Program, which was enacted by the 102nd State Legislature, but not funded, should be implemented and enlarged to provide four-year awards averaging at least $500 per year for the equivalent of 2 per cent of the number of students graduating from Maine public and private high schools each year. By 1970 this program should make new awards equivalent to 5 per cent of the high-school graduating class and by 1975 equivalent to at least 8 per cent.

2. Annual appropriations for the Teachers Scholarship Program should be increased immediately to $100,000 per year and preference in awards should be given by the university to students undertaking programs preparing for elementary-school teaching, especially at the primary level.

3. The State Legislature should plan to provide annually sufficient funds to match at least equally, on a yearly basis, the Federal contribu-

tion for the Guaranteed Loan Program under the Federal Higher Education Act of 1965. The legislature should also continue to provide adequate matching funds for the National Defense Education Act Loan Program.

4. Consideration should be given to providing some scholarship funds to the university to assist students who desire to attend a university community center but live too far to make commuting feasible.

5. Significant improvements in graduate education are not likely unless more fellowships and assistantships are provided at the University of Maine. Like it or not, graduate students have come to expect adequate if not generous financial support. The experience throughout the country is that the good students will go where such support is available. It will probably be necessary for the university to establish a few very generous graduate fellowships in certain fields of specialization which are in the developmental stages. Without increased aid for graduate students, plans for major improvements in graduate education are not likely to be very successful.

In 1961-1962, for the nation as a whole, state and local funds for the support of education programs in public institutions averaged 67.9 per cent of the total. In Maine, for the same year, only 44 per cent of education program expenses were covered by state and local funds. Only two states had poorer records. However, by 1965-1966 state and local funds in Maine were for all public institutions covering 57 per cent of the cost of instruction — a decided improvement over five years previously. The Consultant Panel believes that by 1975 state and local support for the cost of instruction in public institutions of higher education nationally will average at least as high as it did in 1965-1966 and that Maine should expect to at least equal this average. On the basis of the figures reported earlier, expenditures by the state of Maine for public higher-education programs (exclusive of construction and research) should be about $40.7 million in 1975-1976 to adequately support the education programs and related activities recommended in this report. The Consultant Panel believes this figure is as reasonable an estimate as can be made at this time for 1975-1976.

Can Maine afford this expenditure for support of a much-expanded University of Maine in 1975-1976? We believe it can. In 1965 state ex-

penditures for public institutions of higher education in Maine, according to the United States Department of Commerce, amounted to $20 per capita of population. In the same year, 21 states spent over $40 per capita for public higher education, and only nine states spent less per capita than Maine for the support of public institutions of higher education. A more sensitive measure of the effort being made relates to expenditures for public higher education as a per cent of per capita personal income. In 1965, 37 states, including Vermont and New Hampshire, spent more per $1,000 of personal income in the support of institutions of higher education than did the state of Maine; 29 states collected in revenue a larger amount per $1,000 of personal income than did the state of Maine. Of the 15 states having lower per capita personal incomes than Maine, all of them spent a higher per cent of personal income for public institutions of higher education than did Maine. The Consultant Panel concludes that Maine has the resources and can find the means to support the increased education expenditures required in the future. What is required is the decision to do so.

A decision to broaden public higher-education opportunities in the state of Maine and to develop and use the resources of higher education to further the cultural and economic growth of the state will require a proportionately higher commitment of the state revenues to these purposes than has ever been the case in the past. In fact, it may mean that additional state revenue will be required since extensive participation by local communities in the financing of higher-education institutions, programs, and services, does not seem feasible in the light of the improvements in salary, program, facilities, and services which still remain to be made at the elementary- and secondary-school levels. The Consultant Panel believes that Maine has the resources and can afford the expenditures which will be required if the taxpayers are convinced that the spending of funds is adequately supervised within a well-coordinated university system where waste and duplication are held to a minimum.

CONCLUSION

TODAY, the state of Maine has the beginnings of a system of public higher education — but only the beginnings. There are high hopes expressed by political, governmental, labor, civic, industrial, and business leaders about what more and better higher education can do for the state of Maine. The Consultant Panel suspects, however, that few people in the state of Maine fully appreciate the time, money, stress, initiative, and imagination required to build a strong institution, let alone a cohesive and comprehensive system of public higher education.

Strong public systems of higher education do not exist in a vacuum. Education is a "seamless" affair; the quality of higher education, particularly public higher education, in many respects depends upon the quality of the elementary- and secondary-school programs through which the students must pass before reaching the institute, college, or university. In fact, one of the most stultifying influences on a college or university is the lack of educational preparation and educational motivation on the part of students.

Any state that desires to improve its programs and services in higher education must simultaneously look to the quality of its elementary and secondary schools. If education is the seamless program we think it is, improvement must move forward on many fronts. This matter is especially relevant for the state of Maine as it plans the future of higher education in the state.

No state today can be even a marginally-successful competitor in the interstate contest for brains and business without a higher-education system which nurtures and supplies new talent and stimulates that which exists to new levels of accomplishment and discovery, and is publicly recognized for its ability to do so. While there may be no sure way of measuring the dollar and cents contribution which higher education may provide for a state through more business, more jobs, more income, and a better life and future for all its citizens, the late President Kennedy sug-

gested what the future consequences of inadequate provisions for higher education might be when he said:

> "New industries increasingly gravitate to an area with a strong center of learning and research. The distressed areas of the future may well be ones which lack centers of graduate education and research."

Though few people today in the state of Maine would deny that the opportunities are many to effect significant improvements in the quality and quantity of higher education, this is not enough. Higher education in the state of Maine today does not need a minimum of skeptics but rather a maximum number of energetic advocates. Today's unmet higher-education needs in the state of Maine are tremendous. If they are to be met effectively and rapidly and if the necessary planning for the future is to get started, a sizable fiscal commitment by the citizens of the state of Maine is absolutely essential. Frugality and austerity will not today or in the future build a great public system of higher education — or even a poor one. Great systems of higher education are built with faith, vision, and boldness backed up by good plans and adequate funds.

Higher education in the state of Maine today — the students, the programs, the facilities — is the product of untold numbers of plans, decisions, and actions which have taken place over the 172 years which have passed since the founding of Bowdoin College. Ten years from now higher education in the state of Maine must accommodate over twice the number of students enrolled today in buildings yet to be built, the equipment for which has still to be invented.

In many instances the substantive content of the courses which must be offered has not been discovered; the faculty for these programs have yet to be trained; the textbooks and other service materials have yet to be written; and the visual, sound, and other electronic devices, which will be so essential to program offerings, have yet to be perfected.

The Consultant Panel undertook this study with the belief that the people of the state of Maine desire for the future nothing less than the best with respect to higher education. We have laid out what in our judgment the challenges are for Maine if the best in higher education is to be had. All of these challenges are well within the capabilities of the state of Maine to achieve. All that is needed is the decision to meet them.