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THE PROVOST

February 28, 1989

To: Faculty of Arts and Sciences

F.M.T.

From: Frank M. Turner

I am pleased to share with you the enclosed final report of the Ad Hoc Committee on Research in the Faculty of Arts and Sciences. Because several of the recommendations of this Committee have already been implemented and others are under consideration, I would like to bring to your attention the former and solicit your comments on the latter. Let me first emphasize, however, that President Schmidt and I share the Committee's general conclusion that the Graduate School of Arts and Sciences is an essential component of Yale University, and that a vigorous and excellent Graduate School requires the presence of a dedicated group of researchers, including graduate students. Turning to the Committee's specific recommendations which derive from these conclusions, I will comment on them in the order that they appear in the report.

1. External research support. I share the Committee's belief that Yale's share of available external research support, whether from the federal government, private foundations, or industry, can and should be increased. The specific goals put forth by the Committee will be difficult to achieve, but the University is committed to working toward them.

2. Principal Investigator's Handbook. The Committee's recommendation that the University prepare a Principal Investigator's Handbook is an excellent one. The need for such a Handbook is clear. A PI Handbook has already been drafted and is currently undergoing final review. It will be issued shortly, and I will see that it is revised and improved as it is put to use.

3. Research Centers. The Committee recognized that various forms of group and multidisciplinary activity can provide a strong, positive contribution to the intellectual life of the University, and recommended that Yale maintain a balance between such activity on one hand and individual faculty and departmental activity on the other. I will ask the appropriate Advisory Committees to review the place and importance of Center-based interdisciplinary activity. The Advisory Committee on the Physical Sciences and Engineering is at present reviewing all Program and University Centers in their purview.

4. University grants to individuals. In April, 1987, the Provost announced a new policy related to this issue. This policy states: "If faculty members eligible for a triennial leave of absence, sabbatical leave or Senior Faculty Fellowship, obtain for the term of the leave any portion of their salary from external sources, one-half of the resultant savings will be returned to an individual expense account which may be used for the legitimate

expenses for research." These changes extend eligibility to leaves other than triennial and double the amount returned to an individual expense account as a grant. I do not intend further alteration of these policies at the present time.

5. & 6. The Physical Plant and capital planning. The President and I are well aware of our facilities problems, and in parallel with the Research Committee's work, four other committees worked throughout the last academic year formulating a long term capital plan. We are in the process of formulating a parallel academic plan and organizing a budget that will implement the capital plan.

7. The allocation of indirect costs. The Research Committee called for improved communication about the allocation of indirect costs, a suggestion that is both sensible and easy to implement. The recovery allocations will be fully disclosed in the PI Handbook. I do not at this time plan to change our policy of allocating centrally expenditures from indirect cost income. To the extent possible, the priority for these as well as other incremental funds that can be identified will be the renovation of our facilities. This process must be implemented centrally, rather than by departments or individual faculty members.

8. The Offices of Grant and Contract Administration and Cooperative Research. As recommended by the Committee, these two offices will be moved to expanded quarters at 246 Church Street next summer. Furthermore, I am pleased to announce that, effective April 1, I have appointed a full-time Director of Grant and Contract Administration. Some additional information on this appointment and on the reorganization and the relocation of this Office is provided in an accompanying memo.

9. Yale's future as a research University. I wish to endorse strongly the Committee's conclusion that research and teaching -- both undergraduate and graduate -- are inseparable and synergistic. The President and I wish to reaffirm here our commitment to sustaining and improving Yale's position as a great research University.

10. Additional issues. Finally, I would like to recognize the importance of the additional issues identified by the Committee for the research climate at Yale, ranging from concerns about the role of the Divisional Advisory Committees to the need for further study on problems such as spousal employment opportunities and computer services. I will continue to seek ways to improve our situation in all of these areas.

I would be pleased to receive comments both on actions we have already taken as well as recommendations which have not been implemented. The important issues which surround the manner in which the University supports and encourages research are under continuous review.

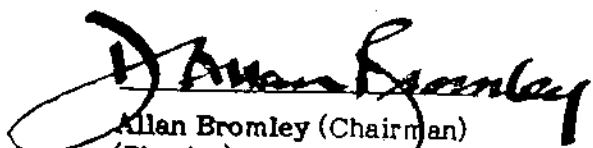
The enclosed report has been an important contribution to this process and I am grateful to Professor Allan Bromley and his Committee for detailed analysis of questions related to research support. I will very much look forward to comments of a broad cross-section of the faculty on the important issues raised in this report.

**RESEARCH IN THE FACULTY OF ARTS AND SCIENCES  
YALE UNIVERSITY**

*The Report of an Ad Hoc Committee*

*November, 1988*

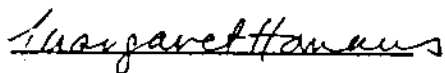
COMMITTEE MEMBERSHIP



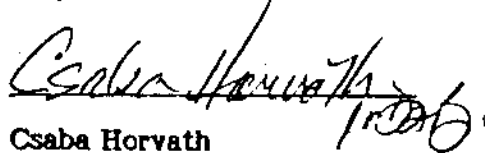
Allan Bromley (Chairman)  
(Physics)



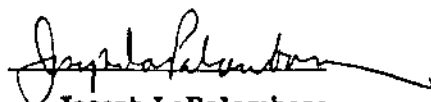
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Margaret Homans  
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Csaba Horvath  
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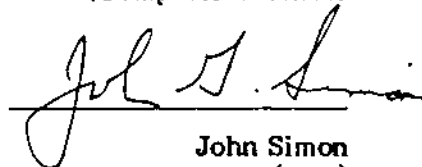
Joseph LaPalombara  
(Political Science)



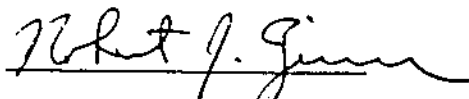
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## INTRODUCTION

The Ad Hoc Committee on Research in the Faculty of Arts and Sciences was established by Provost William Nordhaus in January 1988 and held its first meeting on February 3; subsequently it has held seventeen further meetings.

It has understood its charge as relating to the following three basic questions:

1. What mechanisms, structures and incentives are required to improve the quality, and increase the scope of externally supported research in the Faculty of Arts and Sciences?
2. How can existing University resources be utilized more effectively and efficiently to improve the environment for research in the Faculty of Arts and Sciences?
3. How can overhead reimbursement received by Yale in connection with external research support be used more effectively to provide increased incentive to Yale faculty members to seek increased external research support?

In addressing this charge, the Committee has sought input from a broad cross section of the Yale community. We have met with the following persons in our various meetings:

<b>William Nordhaus</b>	Provost
<b>Charles Long</b>	Deputy Provost
<b>Gary Haller</b>	Deputy Provost for the Sciences
<b>Gerhard Giebisch</b>	Director of the Division of Biological Sciences
<b>Jerome Berson</b>	Director of the Division of Physical Sciences and Engineering
<b>Wendell Garner</b>	Director of the Division of Social Sciences
<b>David Marshall</b>	Associate Professor of Comparative Literature and of English and the designated representative of Marie Borroff, Director of the Division of the Humanities
<b>Robert Bickerton</b>	Director of the Office of Grants and Contracts and the Office of Cooperative Research
<b>Peter Brooks</b>	Director of the Whitney Humanities Center
<b>Joseph LaPalombara</b>	Director of the Institute of Social and Policy Studies (and a member of the Committee)

<b>Christopher Reaske</b>	Director of the Office of Corporate and Foundation Relations, University Development Office
<b>Charles Bockelman</b>	Professor of Physics and former Deputy Provost for the Sciences
<b>Richard Ferguson</b>	Director of the Computing Information Services
<b>Jules D. Prown</b>	Paul Mellon Professor and Chairman, Department of the History of Art
<b>Richard C. Levin</b>	Professor and Chairman of the Department of Economics

The Committee wishes to emphasize, at the outset, the rather remarkable unanimity of opinion developed within it as well as in its discussions with the above named persons with whom it has met.

It is also important to emphasize that since detailed notes on our discussions and our preliminary recommendations have been made fully available to the Provost's Office as we have proceeded, some of these recommendations have already been accepted and are already being implemented. To try to reflect these developments in this Report, would involve tracking a moving target and we have chosen, rather, to include all our recommendations whether they have already been accepted or not.

The problems that we address herein, in response to the Provost's charge, are very real, and the possible solutions to these problems — and the opportunities that they represent — are correspondingly real and challenging. The Committee is unanimous in its opinion that Yale both **can** and **must** respond to these opportunities and that in doing so it strengthens **both** its education and research missions.

In the following sections, we present our principal conclusions in response to our charge; we then note a series of issues which are essential to a full response to this charge — particularly as it relates to the environment for research at Yale — but which would require much more extensive study than was possible for the present Committee before detailed recommendations could be formulated responsively. The issues that we raise cut across the entire spectrum of research activity at Yale; they were raised repeatedly — and in almost identical form — by a substantial majority of those listed above with whom the Committee held detailed discussions.

In the Report that follows, we make no attempt to detail the evidence and reasoning that has led us to our recommendations; rather we refer the reader to the several Appendices, each keyed to a particular section of this Report.

**CONCLUSIONS AND RECOMMENDATIONS**

We begin with two quite general conclusions that underlie our subsequent recommendations. They are the following:

## 1. The Nature of Yale

We take it as given that the educational mission of the College will, and should, remain a primary focus at Yale. But as emphasized by the 1961 DeVane Committee report on tenure, **Yale is one of the very few institutions that can aspire to giving its students the social ambience of the small College and at the same time the intellectual resources of a great research University.** If we are to achieve this goal, a healthy, vibrant, research-oriented Graduate School is an essential component of Yale. To that end it is essential that this be articulated clearly by the President and Provost — and by the Corporation — both inside and outside of Yale.

It bears emphasis that such a Graduate School is defined by the presence of a dedicated group of **researchers** — specifically including graduate students — in all its areas of scholarship and teaching.

## 2. Increasing the Scope and Quality of Research at Yale

A centrally important aspect of any effort to increase the scope and quality of research at Yale is the strengthening of departments and research areas that have, for whatever reasons, fallen behind the frontiers of modern research in their respective areas of scholarship or below the critical mass required for effective pursuit of such scholarship.

As a specific example, the Committee focuses, in this Report, on the Division of the Physical Sciences and Engineering. The time has come when Yale must face up to its future in science and engineering; **status quo** is untenable. Yale must be prepared to invest substantially in strengthening engineering departments, particularly, and science departments generally; the alternative is to delay beyond reason the realization of its education and research potential in these areas.

There is a growing belief, both within and outside of Yale, that although progress is being made the scope and quality of Yale's engineering and scientific activities has fallen significantly behind those characteristic of both the Division of Humanities and that of Social Sciences. Such belief seriously erodes Yale's stature as a research University and thus its ability to attract its share of the most able students — both undergraduate and graduate — and, most particularly, its share of the most able faculty members.

An essential element in the correction of this situation, again, is a clear articulation by both President and Provost — as well as the Yale Corporation — of Yale's intent to build, and maintain, world class excellence in **all** its areas of scholarship.

Appendix 1 provides some historical perspective on the change in the stature of Yale Science and Engineering particularly post-1940; Appendix 2 also addresses the question of peer perception of the quality of Yale faculty that is pertinent to the above discussion.

More specific recommendations, responding to the Committee's charter, now follow:

### 1. Yale's Share of Available External Research Support

We conclude that it is realistic for Yale to aspire to **doubling its percentage share** of the available federal and foundation funding in support of its research activities in

FAS, and equally reasonable to aspire to **tripling its percentage share** of the available industrial funding. It bears emphasis that timing is important here; unless Yale takes concrete steps, **now**, to improve its competitive position in this federal funding arena it will almost inevitably find its share **decreasing** as comparable institutions improve their faculties, facilities, and infrastructures facilitating the acquisition of federal funding — and, indeed, all funding.

Appendix 2 provides data on funding and on peer review evaluation of faculty quality that have led the Committee to these conclusions.

**2. Toward Increased External Research Support**

To achieve such increases in external support, several important steps must be taken immediately:

a) A **Principal Investigator's Handbook**, similar in style and content to that now in use in many comparable institutions, but particularized to Yale, must be prepared and made available to all faculty to provide information on available external research funding sources and the mechanisms and assistance available for acquisition of such support. It is lack of information much more than lack of incentive that currently limits attempts at obtaining research support.

b) Three new positions, which might be called **Research Support Advisors**, should be created to act as interfaces between individual faculty members and potential external support sources. We would suggest the following:

**Research Support Advisor - Division of the Humanities**

This appointment might well be associated with the Whitney Center.

**Research Support Advisor - Division of Social Sciences**

This appointment might equally well be associated with the ISPS.

**Research Support Advisor - Division of Physical Sciences and Engineering**

This appointment might best be associated jointly with the Offices of Grants and Contracts and of Cooperative Research.

We do **not** recommend the recruitment of a Research Support Advisor in the Division of Biological Sciences in view of the excellent work already being done in this general area — for the Medical School and the Department of Molecular Biophysics and Biochemistry — by A. Aaselstad. Rather, we recommend that his mandate be

expanded to include the Biology Department as well.

In the Humanities and Social Sciences, the Research Support Advisors might wish to explore the ways and means (if such exist) to address an apparent anomaly: Several distinguished departments in these Divisions have, for many years, been peer rated Number One in their respective disciplines (see Appendix 2). Yet, this national eminence has not been as strongly reflected in the flow of outside support for research in these Departments as one might expect. Any assistance in obtaining such support that might be provided to these centers of excellence would be an important gain for the entire university community.

It must be emphasized that the activities of these Research Support Advisors must be coordinated closely with those of the Offices of Grants and Contracts, of Cooperative Research, and of University Development. The occupants of these new positions should have experience both in an academic faculty, in their areas of responsibility, and in a federal research funding agency. Such experience will necessarily command substantial compensation. We would expect this increased investment, by the University, in its research support infrastructure, to pay a handsome dividend in the form of increased external support for research activities, not only in the above mentioned Centers but also across the entire spectrum of faculty research activity.

Specifically, the Committee wishes to emphasize both the importance that it attaches to these new positions and its conviction that the appointment of highly qualified, full-time persons to these positions, at the earliest possible time, is essential to attaining the increased level of external research support that we discuss in this Report.

### **3. Foci for Group and Multidisciplinary Activities**

The Committee has received persuasive evidence of a trend in the federal funding agencies away from the support of individual researchers and toward group and multidisciplinary activities. While the Committee is convinced that the role of the individual researcher will remain central to scholarly activity, it is essential that Yale researchers be cognizant of, and responsive to, this new trend if we are to have a realistic hope of increasing our share of the available federal funding.

Both the Whitney Center and the ISPS require additional endowment and other University support to allow them to function more effectively as foci for group and multidisciplinary activities within their respective Divisions. If properly supported, these two Centers can provide the necessary functions within their respective Divisions; it also bears emphasis that there are also a number of other Centers at Yale, many within the Division of Physical Sciences and Engineering and, in many of these cases, based within individual Departments.

The Committee has come to recognize that these Centers can provide a strong, positive contribution to the intellectual life of this University — working in close cooperation with the Departments — and that they can play an important role in assisting the Departments in recruiting the most attractive candidates to faculty positions at Yale.

In responding to present and future opportunities; it is important that Yale maintain a balance between individual faculty and departmental activity on the one hand and Center-based transdepartmental activity on the other. Only by fostering both can

we hope to meet our goals for research activity throughout the Faculty of Arts and Sciences.

#### 4. University Grants to Individuals

##### a) Release Time

The major form of research support in the Division of the Humanities takes the form of grants to individuals — grants that provide leave time for research that normal teaching responsibilities largely preclude during normal academic sessions. Currently, in some cases at least, Yale's leave policies effectively penalize those who receive external awards. These policies should be reformulated to remove such disincentives but without reducing the total allowable leave time or Yale's contributions to it.

##### b) A Grant Promotion Fund

To a degree that depends markedly on the field and the external support agencies interested in that field, it is frequently very difficult — particularly for young faculty members or those interested in making substantial changes in their areas of research — to obtain the necessary support.

The Committee recommends, therefore, the establishment of what might be called the **Grant Promotion Fund**. This fund would be available to those faculty members who meet certain criteria:

Those in the first two years of their Yale faculty appointment, or

Those who have no external research support and can demonstrate that they have made at least two attempts to acquire such support during the prior two years but have not yet obtained that support.

Appendix 3 provides additional discussion of these recommendations.

#### 5. The Problem of Physical Plant

As the President and Provost are well aware, deterioration in the level and quality of service provided by the centralized University Physical Plant organization has passed, in many instances, well beyond the level of annoyance and inhibition of research activity, to that of safety hazard.

While the Committee recognizes that new and highly experienced management has been put in place to respond to this situation and that the alternatives available to Yale within the framework of the current union contracts are limited, we believe that some immediate decentralization of management responsibility is essential.

The Committee recommends that each major building or building complex have a permanently assigned manager or superintendant who would be responsible for all aspects of maintenance and custodial service in the unit to which he or she is assigned and that this individual would be responsible **both** to central Physical Plant administration and to a designated representative of the users of the unit in question.

Appendix 4 provides further discussion of this recommendation.

## 6. Long Term Capital Planning at Yale

Those who appeared before the Committee repeatedly expressed deep concern over the physical deterioration of the campus, and the negative implications of this deterioration for the recruitment and retention of faculty, for teaching, and for the conduct of research, that these conditions carry. Given the critical need to assure that the most egregious of these conditions will be ameliorated earlier rather than later in the evolution of the university's new approach to capital budgeting, we would summarize what we have heard, and what we would urgently recommend, as follows:

That, beyond the valuable — and highly welcome — interviews and site visits the capital-budget subcommittees have already conducted, further attention be given to the need to consult the ultimate users of facilities both as to their current requirement and those that they may be able to project into the future. This is particularly urgent regarding laboratory facilities, as well as all arrangements that turn on highly sophisticated systems of communication, networking, the use of energy, and so on.

That considerations of safety be given high priority.

That alternative "mixes" of approaches to capital budgeting be evaluated with a view to optimizing priority needs and capital outlays.

That in every instance, from simple refurbishing to radical alterations in existing facilities, or construction of new facilities, prior and careful attention be paid to the disruption of teaching and research that these activities may imply.

That, both as a cost-saving and rational use-of-space strategy, very high priority be accorded the matter of flexibility in the configuration of laboratories.

Above all, we urge that the university's imminent capital-budget campaign and program steer clear of a potential outcome, described to us, somewhat cynically perhaps, as **the best painted, prettiest, driest, nineteenth century research facilities anywhere.**

In keeping with the spirit of the new capital campaign and program, the Committee is convinced that a continuation of the decentralized approach, and faculty involvement, already begun, will pay rich dividends — in morale as well as in material terms.

## 7. Allocation of Overhead Charges and Reimbursements

### a) Improved Communication

The exact allocation of indirect cost charges and reimbursements by the University Administration can frequently be a major source of confusion and potential friction. To optimize communication and cooperation between the Administration and faculty members in obtaining and managing external research support funds, information should routinely be available which indicates:

The various allocation categories (indirect cost pools) as outlined, for example, in the Federal Office of Management and Budget (OMB) Circular A-21 (see Appendix 5).

Specific definitions of these categories as they are applied to Yale.

The percentage of the total indirect charging rate allocated to each of these categories.

The fraction of the indirect cost reimbursement from the federal government allocated to specific purposes within the University and the remaining fraction allocated to the G & A accounts.

**b) Sequestering of Infrastructure Reimbursements**

Because there is very little ambiguity or disagreement about its appropriateness or use, the Committee recommends that the fraction of the overhead reimbursement that is attributable to operation, maintenance, and use charges for buildings and equipment should be sequestered for such use, although it must be recognized that this amount will still be inadequate — particularly in the face of a legacy of deferred maintenance — and must necessarily be supplemented by additional University resources.

**c) Allocation of Overhead Reimbursements**

To provide additional incentive to researchers to obtain greater external research support as well as realistic overhead reimbursements as part of that support, a specified fraction — perhaps one-quarter — of that fraction of the overhead pool not associated with operation and maintenance and with use-charges for buildings and equipment should be returned to the Principal Investigator involved and a similar fraction to the Department involved — with the understood freedom that some Departments may wish to allocate some, or all, of their return back to the Principal Investigators. Currently, this would correspond to rebates of roughly 10% of the total overhead reimbursement to the Principal Investigator and to the Department, respectively. Most importantly, whatever fraction of the overhead rebate may be retained by the departments should not be designated to match Provostial Office funding of set-up and recruitment expenses associated with new faculty or the retention of existing faculty.

It bears emphasis that return of a significant fraction of the indirect cost reimbursement to the unit of origin (a specific Principal Investigator, Department, or School) is by no means unprecedented. Many of the major research universities have adopted this as a standard incentive mechanism. The returned fraction, however, varies widely from a few percent to Harvard's 85%-90% depending upon the extent to which these universities expect their research units to function as independent financial entities — tubs on their own bottoms.

For a further discussion of these recommendations and some comparison of Yale overhead charges with those of other universities, please see Appendix 5.

## 8. Offices of Grants and Contracts and of Cooperative Research

To facilitate the acquisition of further external support and to project the appropriate image of Yale to the external world, the Committee recommends that the Offices of Grants and Contracts and of Cooperative Research should be housed together in a conveniently accessible, attractive, well-furnished location somewhere on campus; the nature of the facility and its accessibility are much more important than its specific location. Close coordination of the work of both these Offices with that of the Development Office is essential.

## 9. Director of the Office of Grants and Contracts

Because the Committee has been convinced that no one individual, no matter how able, can hope to cover, adequately, the increased activities that it sees as mandatory in the Offices of Grants and Contracts and of Cooperative Research, the Committee recommends that a Director of the Office of Grants and Contracts — having outstanding professional qualifications detailed previously — and reporting to the Provost, should be hired as soon as possible so that Robert Bickerton can return to devoting his full efforts to the Directorship of the Office of Cooperative Research.

## 10. Investment in Yale's Future as a Research University

Yale has a great many research activities of which it can be justly proud. But at the same time, a significant fraction of its major research activities are operating at less than their potential. Frequently this reflects inadequate funding — both internal and external — and the consequent absence of critical mass in the activity. The Committee has also been given repeated examples of situations — the Whitney Center, the ISPS, the Engineering Departments — where the University has initiated support, but has then stopped short of the investment necessary to insure the potential return on that investment.

We would only emphasize, at this time, our conclusion that in the absence of substantial, incremental, University financial support to these, and other Yale research activities, it will be extremely difficult, if not indeed impossible, to maintain Yale's present stature as a research university, quite apart from any possible improvement of that stature.

And we would conclude by emphasizing, in the strongest possible fashion, our conclusion that improved research and improved teaching — both undergraduate and graduate — are inseparable and synergistic. Only by maintaining both in the healthiest possible state can Yale aspire to DeVane's goal of giving its students — and its faculty — the best of both the College and research University worlds.

## 11. Additional Issues

In this report we have provided our response to the major components of the charge given to the Committee. We believe it important to note, however, that in the course of our discussions, a number of other issues — centrally related to the environment for research at Yale — have emerged, not because the Committee probed for them but rather because those who talked with us believed, with remarkable unanimity, that these additional issues needed immediate and fuller investigation than was possible for the present Committee. We list the most important of these additional issues here with the recommendation that they indeed merit further study if Yale's Administration and faculty are to have in hand a complete response to the Provost's original charge to this Committee. These additional issues are:

### **1. The Morale of the Yale Research Faculty**

Reflecting difficulties — both real and perceived — in obtaining the support necessary for the pursuit of their scholarly ambitions, some members of the Yale faculty have become frustrated and some alienated from the institution as a whole. Morale in some areas has been reported to us as significantly lower than in the past; if true, such reduced morale can have a marked negative impact on both the scope and quality of research activity at Yale and on the quality of our educational enterprise.

### **2. The Roles of the Divisional Advising Committees**

The Committee found a growing perception that the Divisional Advisory Committees were not currently functioning as effectively as they have in the past in providing an interface between faculty members and the central Administration of the University. This perception, whether true or not, is damaging to the collegial atmosphere that characterizes the most successful research universities.

### **3. Appointment Procedures**

Although certainly not the intent of the Tobin Committee that examined Yale's faculty appointment procedures in 1981 and that recommended a variety of procedural changes directed toward establishing more complete and democratic search and appointment procedures, the Committee was repeatedly made aware of the perception that the net effect of these changes was a shift of focus from the intrinsic excellence and quality of the candidate to the mechanics of the appointments procedure. Increasingly the time and detail demands of these procedures have made it difficult for Yale to compete effectively for the most talented and desirable new faculty members or to retain some of its most effective faculty members in the face of external competition.

### **4. The Case for Graduate Student Support**

Graduate students of high quality are central to the activities of any research university. Increasingly we have learned that graduate students, particularly in the Humanities and in some areas of the Social Sciences, are obliged to take on excessive teaching responsibilities and in many cases, external employment in order to support themselves and that inconsequence, their graduate programs have become unreasonably long. The entire question of the support of such students and the possibility of obtaining additional support for them as part of externally funded grants and contracts merits immediate study.

### **5. The Spousal Problem**

Recognizing that members of the Yale research faculty are increasingly also members of two career professional families and that the New Haven area is much less attractive to the spouses of these faculty members than are the major urban centers housing some of our notable competitors, in the future it will be essential for Yale to play a more active role in the fostering of professional spousal opportunities in the New

Haven area than has been the case in the past if Yale is to remain competitive in the search for the most highly qualified faculty members.

#### **6. The Problem of Computer Services**

With the increasing availability of inexpensive, reliable information handling hardware and professionally developed software for almost every conceivable application and the necessity of using modern computer technology, if one is to remain competitive in almost every area of modern research, the questions of computer availability and cost take on increasing importance.

Faculty members requiring such computer support are becoming increasingly aware of their competitive disadvantage with respect to researchers at other top universities that are providing computer time and associated technical support without direct cost — in a manner parallel to that in which library support continue to be provided at Yale.

The recent Yale decision to expand the scope of overhead recovery on federal grants and contract to include the cost of computer usage and services has exacerbated an already serious problem.

Recognizing that there is no solution that avoids the commitment of very substantial University resources, this committee recommends that this question also merits an immediate, in-depth study.

**APPENDICES:**

1. A Brief Historical Sketch of Science and Engineering at Yale
2. Increasing the Funding for Externally Supported Research Activity in the Faculty of Arts and Sciences
3. University Grants to Individuals
4. The Problem of Physical Plant
5. Allocation of Overhead Charges and Reimbursements

These are available for inspection in the Office of the Deputy Provost for the Physical Sciences. Please call 24448 to arrange to see them.