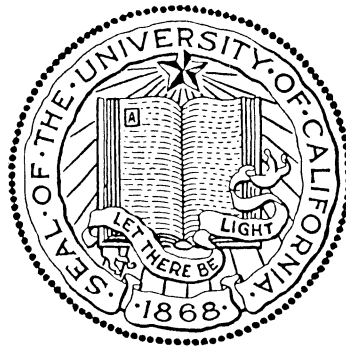


Joint Legislative Audit Committee
Office of the Auditor General



REPORT TO THE CALIFORNIA LEGISLATURE



REVIEW OF PRIVATELY SUPPORTED RESEARCH

Office of the Auditor General
1955-1978

REPORT OF THE
OFFICE OF THE AUDITOR GENERAL

715.9

UNIVERSITY OF CALIFORNIA:
REVIEW OF PRIVATELY SUPPORTED RESEARCH

AUGUST 1978



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COMMERCE SUBCOMMITTEE ON
WORKERS' COMPENSATION
WAYS AND MEANS
SUBCOMMITTEE ON
EMPLOYEE BENEFITS

September 1, 1978

The Honorable Speaker of the Assembly
The Honorable President pro Tempore of the Senate
The Honorable Members of the Senate and the
Assembly of the Legislature of California

Members of the Legislature:

Your Joint Legislative Audit Committee respectfully submits the Auditor General's review of research by the University of California which is wholly or partially financed from private sources.

The Auditor General investigated research sponsored by private, profit-motivated entities with particular emphasis on those areas where State subsidies may occur. Evaluations were made on adherence to existing university policies and the need to improve policies and procedures relative to privately-sponsored research. They found a high incidence of cost sharing by the State on privately-sponsored research through reduced overhead collections and "free" use of the principal investigator's time.

The Auditor General has made recommendations that, if followed, would ensure a higher cost recovery on research projects sponsored by private, profit-motivated entities. They have also recommended strengthening of policies to reduce the potential for conflicts of interest for university researchers.

Respectfully submitted,

A handwritten signature in black ink that reads "Rich Robinson".

RICHARD ROBINSON
Chairman, Joint Legislative
Audit Committee

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SUMMARY

During fiscal year 1976-77 the University of California spent over \$893 million on research. Almost \$330 million was spent by the academic departments and Organized Research Units, while the remaining \$563 million was spent by the Energy Laboratories.

We investigated research projects funded by private, profit-motivated entities and reviewed activities of large Organized Research Units, which included the Agricultural Experiment Station. The Energy Laboratories were not a part of this audit.

We found that:

- Some research activities sponsored by private, profit-motivated entities are subsidized by state funds. This results primarily because indirect (overhead) charges are reduced or eliminated and there is no charge for the principal investigator's time (see page 10)
- Research projects for private, profit-motivated entities are often improperly processed as gifts thereby avoiding indirect charges and proper administration as contracts or grants. A large number of gift-sponsored research projects are for proprietary agricultural or pharmaceutical products (see page 17)

- The State is not reimbursed for indirect (overhead) charges collected from private sponsors of research. Activities comprising the indirect charge are paid primarily from state funds, yet the University retains indirect charges collected from private research sponsors (see page 21)
- Policies and procedures are inadequate to disclose and prevent conflicts of interest for university researchers. We found cases of potential conflict of interest which we feel cannot be prevented by current or proposed University of California policies and procedures (see page 25).

We recommend that the University of California:

- Develop and enforce procedures whereby all costs of research for private, profit-motivated entities will be borne by the sponsor
- Rigorously enforce university policy so that private, profit-motivated research projects will not be classified as gifts
- Negotiate with the Department of Finance for a new agreement whereby the State will be reimbursed for receipts of indirect charges to private sponsors of research
- Require faculty members to report all professional activities, compensated or uncompensated, for the entire year.

INTRODUCTION

In response to a resolution of the Joint Legislative Audit Committee, we have conducted a management audit of selected areas of research at the University of California. This review was conducted under authority vested in the Auditor General by Section 10527 of the Government Code.

This report, ninth in a series,* involved a cursory evaluation of all research and a more thorough analysis of that funded by private, profit-motivated entities. For purposes of this report, private, profit-motivated entities also include nonprofit institutes representing a single industry and funded by its members, but exclude philanthropic organizations such as the Ford Foundation.

Research expenditures from current funds for fiscal year 1975-76 were over \$301 million and in 1976-77 were almost \$330 million, exclusive of expenditures for the Energy Laboratories. The Energy Laboratories, not included in the audit due to limited staff, were funded at over \$469 million in 1975-76 and \$563 million in 1976-77. The total

* Earlier reports are U.C. Davis Child-Rearing Practices and Academic Abilities Research Project (Letter Report 715.1), August 1977; The Patent and Royalty Program of the University of California (Report 715.2), October 1977; The Foundations' Expenditures Need Review and Control (Report 715.3), December 1977; University of California's Management of Real Estate (Report 715.4), February 1978; Review of the University of California's Private Support Program (Report 715.5), June 1978; University of California Opportunity Fund (Letter Report 715.6), July 1978; Review of Certain Capital Outlays of the University of California (Letter Report 715.7), July 1978; and University of California's Investments (Letter Report 715.8), August 1978.

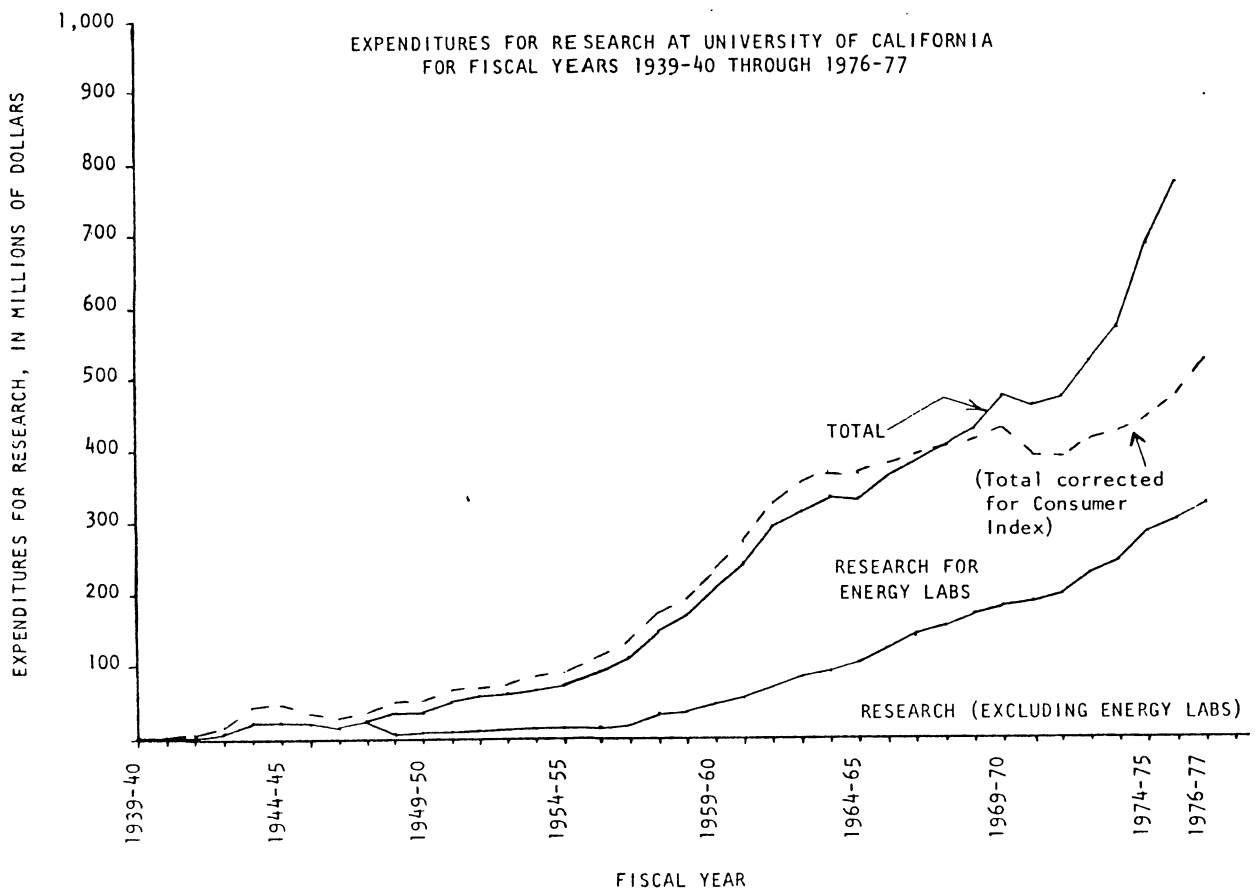
research expenditures were over \$771 million and \$893 million respectively for fiscal years 1975-76 and 1976-77. In 1975-76 the health sciences departments had the highest research expenditure of close to \$100 million, while agricultural research was second with over \$54 million. The following table shows research expenditures for each campus by major department for the 1975-76 period. (This period is shown since it was the latest for which information was available upon audit initiation.)

Research Expenditures for Fiscal Year 1975-76

<u>Campus</u>	<u>Research Total</u>	<u>Health Sciences</u>	<u>Agriculture</u>	<u>Engineering</u>	<u>Other</u>
Berkeley	\$ 59,310,671	\$ 4,849,377	\$ 11,998,425	\$ 9,646,393	\$ 32,816,476
Davis	41,053,249	9,250,055	25,511,801	648,442	5,642,951
Irvine	11,294,506	4,625,981		512,522	6,156,003
Los Angeles	59,488,141	26,716,134		4,870,639	27,901,368
Riverside	16,718,307		14,682,516		2,035,791
San Diego	63,069,187	20,135,525		879,786	42,053,876
San Francisco	37,612,672	34,265,827			3,346,845
Santa Barbara	5,880,145			250,355	5,629,790
Santa Cruz	4,323,938				4,323,938
Systemwide	<u>2,795,323</u>		<u>2,473,545</u>		<u>321,778</u>
Total	<u>\$ 301,546,139</u>	<u>\$ 99,842,899</u>	<u>\$ 54,666,287</u>	<u>\$ 16,808,137</u>	<u>\$ 130,228,816</u>

The actual expenditures for research (excluding the Energy Laboratories) exceed the \$301 million shown above, since faculty salaries are paid from the \$398 million Instruction and Research Budget during the academic year. The University's accounting methods do not permit determination of the allocation of this \$398 million between instruction and research.

Research expenditures were small prior to the mid-1950s but have since increased rapidly. Fiscal year 1976-77 research expenditures (including Energy Laboratories) are 17 times greater than those of 30 years ago (fiscal year 1946-47) and almost 260 times greater than the pre-war year of 1939-40 when corrected for the Consumer Price Index, as seen on the following graph.



Almost 88 percent of research funding is derived from state, federal and local governments, while private entities and university sources provide the rest. The following table shows sources of research funding.

Source of Research Funds--Fiscal Year 1975-76

<u>Agency</u>	<u>Amount</u>	<u>Amount</u>	<u>Percent</u>
State of California			
General Funds	\$51,884,008		
Special--Contracts/Grants	<u>5,879,498</u>	\$ 57,763,506	19.2
Federal Government			
Appropriations	2,808,957		
Grants	136,860,274		
Contracts	<u>65,625,839</u>	205,295,070	68.1
Local Government		1,190,034	0.4
Private Gifts/Grants		25,752,136	8.5
University--Endowments, Sales, Etc.		<u>11,545,393</u>	<u>3.8</u>
Total		<u>\$301,546,139</u>	<u>100.0</u>

Background

Prior to 1960, there were no definitive guidelines as to the relative roles in higher education of the University of California, the state colleges and the junior colleges. At that time there was concern over the rapidly mounting enrollments in the State's higher education institutions and the State's financial outlook. There was also a growing concern that competition and unnecessary, wasteful duplication between the state colleges and the University of California might cost the taxpayers millions of dollars. Assembly Concurrent Resolution No. 88, approved by the 1959 Legislature, requested a liaison committee of the State Board of Education and the Regents of the University of California:

"...to prepare a Master Plan for the development, expansion, and integration of the facilities, curriculum, and standards of higher education, in the junior colleges, state colleges, the University of California, and other institutes of higher education of the State, to meet the needs of the State during the next ten years and thereafter...."

The Donahoe Higher Education Act which was passed in 1960 and is now Part 40 (commencing with Section 66000) of the California Education Code states: "It [the University of California] shall be the primary state-supported academic agency for research." The University of California Academic Plan 1974–1978 listed four reasons for research:

1. The University as a community of creative scholars has an obligation to contribute to the growth of knowledge in general
2. There is a more specific obligation to help solve problems of the community, state, or nation where unique talents of its faculty or special facilities are needed for such problems
3. A faculty member continuously active in research will be more likely to remain an effective and stimulating teacher than one who is not contributing to the growth of a field
4. A distinguished faculty, of the type necessary for stimulation of creative thinking, can be attracted only by an environment that encourages effective research.

Another reason for the popularity of research is that it is one criterion used to evaluate faculty for promotion. The 1978 Handbook for Faculty Members of the University of California states, "Superior intellectual attainment as evidenced both in teaching and in research or other creative achievement, is an indispensable qualification for appointment or promotion to tenure positions." Up to 50 percent of a

faculty member's time may be devoted to some form of research, during which he may engage in activities producing additional compensation. (See our report on the Patent and Royalty Program* for an example.)

Scope of Review

The University's research activity includes an estimated 10,000 funded projects. This includes almost 6,100 extramurally funded contracts/grants, over 1,100 agricultural experiment station projects and over 2,900 intramurally funded faculty research projects. Gift-funded research projects and faculty research projects are not reported in sufficient detail to inventory.

We examined University research contracts/grants funded by private, profit-motivated sponsors. We reviewed the research activities and analyzed a sample of contracts and grants at each campus for compliance with university regulations. An objective of the audit was to answer questions of a general nature relative to research, such as:

- What is the magnitude of research, both cost and number of projects?
- How are research projects funded?
- How are research projects originated?

* Patent and Royalty Program (Report 715.2), October 1977.

Another objective of the audit was to answer questions relative to specific research project performance, such as:

- Is performance in compliance with university policies and procedures?
- To what extent does cost sharing occur in privately sponsored research?
- Are there inconsistencies among campuses in administering research activities?

AUDIT RESULTS

RESEARCH SPONSORED BY PRIVATE,
PROFIT-MOTIVATED ENTITIES IS
SUBSIDIZED BY STATE FUNDS

University of California research activities totaled over \$301 million (exclusive of Energy Laboratories) in fiscal year 1975-76. Over \$25 million of this was funded through private grants, contracts and gifts.

We estimate that at least 64 percent of research sponsored by private, profit-motivated entities incurred state subsidized expenditures through reduced or eliminated indirect (overhead) payment or free use of the principal investigator's time. This practice is at variance with University policies and regulations, and our estimate is conservative since many research projects in which we suspected cost sharing were not included in the above estimate because documentation was inadequate for conclusive proof.

In this study, profit-motivated entities include nonprofit institutes which perform research for a single industry from whom they receive support.

We identified 230 active research contracts/grants that were funded by private, profit-motivated sponsors. This does not include many research activities which were funded through gifts and therefore were not subject to normal grant reporting and controls.

The University Does Not Recover
Full Indirect Costs for Extramural Research

The University's intent to recover indirect costs for extramurally funded contracts and grants is stated in the two regulations cited below.

University Regulation No. 4 (revised) states:

3. Expenses incurred by the University.

For all tests and investigations made for agencies outside the University, a charge shall be made sufficient to cover all expenses, both direct and indirect.

University Regents' Standing Order 100 presents the policy relative to indirect cost recovery for contracts/grants and provides for exceptions upon presidential approval. Duties of the President of the University seen in Standing Order 100.4 (1) include:

The President is authorized to negotiate and approve indirect cost rates to be applied to contracts and grants under which the University conducts programs supported by extramural funds, provided such negotiations shall be directed toward full recovery of indirect costs (emphasis added), except that the fixed allowance for overhead and management under the major Energy Research and Development Administration contracts and indirect cost rates determined under the provisions of General Services Administration Federal Management Circular 73-8, and any successor publication thereto, shall be approved by the Committee on Finance. The President is authorized to negotiate and approve exceptions to the general indirect cost rates determined under General Services Administration Federal Management Circular 73-8, and any successor publication thereto, when such exceptions are deemed by the President to be in the best interest of the University. All such exceptions shall be reported to the Committee on Finance at its next meeting.

Of 230 active research projects sponsored by private, profit-motivated sources, 38 percent paid no indirect cost, 8 percent paid only partial indirect cost and the remaining 54 percent paid the standard university indirect rate. Exceptions to the standard university indirect rate may be obtained by (a) classifying the research project as a gift, or (b) requesting an exception to the indirect rate from the University President's Office.

Gift Classification

If a research project is classified as a gift or grant no indirect charges are assessed and the entire funding can be used for research work. We found a large number of research projects that had characteristics normally associated with grants and contracts, yet were classified as gifts. A more complete discussion of this is presented on page 17 of this report.

Indirect Charge Waiver

A second method of avoiding all or part of the indirect charge of a research project is to obtain a waiver from the President's Office.

The University Contract and Grant Manual states policy relative to exceptions of the indirect cost rate:

PROPOSED BUDGET FOR RESEARCH
SPONSORED BY AN INDUSTRY ASSOCIATION

	<u>Project Funds</u> <u>Requested</u>	<u>UCLA</u> <u>Contribution</u>
<u>Salaries and Wages</u>		
Senior Staff (Faculty Summer Salary) ²	\$10,000	
Faculty Academic Salary ¹		\$12,000
Senior Research Staff ¹	2,000	--
Graduate Research Assistants ³	6,000	--*
Secretary ⁴	--	2,400
	<u>\$18,000</u>	<u>\$14,400</u>
* We are not permitted to so-designate fellowship support of graduate student assistants.		
<u>Benefits</u>		
1 @ 20%	400	2,400
2 @ 1.72%	172	--
3 @ 0.92%	55	--
4 @ 19%	--	456
	<u>\$627</u>	<u>\$2,856</u>
<u>Supplies and Services</u>		
Phone	--	300
Mail	--	100
Xerox	300	300
Drafting and Photo	100	200
Report Preparation	500	700
Miscellaneous Supplies	314	385
	<u>\$1,214</u>	<u>\$1,985</u>
<u>Travel</u>		
Domestic research travel	--	\$600
Total Direct Costs	\$19,841	\$19,841
Indirect Costs @ 26%	<u>5,159</u>	<u>5,159</u>
Total Costs	<u>\$25,000</u>	<u>\$25,000</u>

CONCLUSION

Lack of rigorous enforcement of university policy has resulted in state subsidies to research projects of private, profit-motivated sponsors.

RECOMMENDATION

We recommend:

- That full indirect costs be paid for all research projects sponsored by private, profit-motivated entities
- That full cost of the principal investigator's salary be recovered for all research projects sponsored by private, profit-motivated entities
- That the University share indirect and principal investigator salary costs out of their discretionary funds for those projects where the private, profit-motivated sponsor does not pay the total cost and the University feels the research should be undertaken.

BENEFIT

An undetermined amount of state general fund offset would accrue as a result of full cost recovery.

RESEARCH PROJECTS ARE OFTEN
IMPROPERLY CLASSIFIED AS GIFTS *

The University of California received almost \$60 million from 16,800 gifts from various sources for fiscal year 1975–76, including \$7 million supplied by corporations. Almost \$27 million of this amount was for research. The \$60 million excludes about \$10 million in gifts received through the various university foundations which were not transferred to the Regents.

We found that UC often improperly classifies a research project as a gift instead of a contract or grant. Research projects classified as gifts are not assessed indirect charges and bypass the controls normally exercised on contracts and grants. Control items usually considered in research projects by the Contracts and Grants Office but not applied to gifts include proper indirect rate, budgets, patent rights, personnel policies, equipment acquisition, proper approvals and adherence to other university policies.

Proper Classification of Research

University research projects designated as gifts regularly include attributes usually associated with contracts and grants such as:

- (a) Designated principal investigator
- (b) Statement of scope of work
- (c) Reporting requirements
- (d) Proprietary products.

* For additional information on the University gift practice see Auditor General Report 715.5, Private Support Program, June 1978.

Evaluation of 108 research gifts from four campuses showed that 47 (or 44 percent) involved proprietary agricultural chemicals or pharmaceutical products for private, profit-motivated sponsors.

One large campus with an Agricultural Experiment Station had only 28 active private, profit-motivated research contracts/grants, yet received 256 gifts of almost \$580,000 for research from this type of sponsor for fiscal year 1976-77. Another campus, also with an Agricultural Experiment Station, had only seven active research contracts/grants sponsored by private, profit-motivated entities and received 198 gifts of over \$392,000 for one year's research from this type of sponsor. We sampled a one-month period of gift receipts for another campus and found 21 research projects by private, profit-motivated sponsors totaling over \$200,000 for which there was no record in the Contracts and Grants Office. This campus had 56 active research contracts/grants sponsored by private, profit-motivated entities administered by the Contracts and Grants Office.

It is advantageous for the grantor to have projects classified as gifts since the entire funding can then be used for the research project. Projects defined as contracts or grants normally are assessed 26 percent for indirect costs, while there is no charge for gifts. At times, the private sponsors of research are prompted by the U.C. principal investigator as in the following examples.

The principal investigator wrote to a large chemical company concerning a \$60,000 gift:

I have checked into the funding options here at the University, and I believe that the gift mechanism is the most desirable from both our points of view, if your board can be convinced to trust us.

Another principal investigator wrote a pharmaceutical laboratory:

If the funds were presented as a grant or contract, then we would be required to fulfill the University overhead requirements. However, as a gift, the funds are exempt from these requirements.

The University Gift and Endowment Manual does not define a "gift". Campus contract and grant officers stated they knew of no such university-wide definition. Each campus has its own definition, none of which we found adequate to prevent classifying research projects as gifts.

Research Projects Funded by Gifts Are Treated Differently at Various Campuses

Most campuses process their gifts for research through the Campus Development Office, while extramurally funded grant/contract research is administered through the Campus Contracts and Grants Office. One large and one small campus processed gifts for research through the Contracts and Grants Office, while one campus with an extensive research volume processed none of its private gifts or grants and few of its private contracts through the Contracts and Grants Office.

CONCLUSION

Lack of enforcement of university policy and absence of a clear definition have resulted in research projects being classified as gifts, thereby avoiding indirect charges and proper controls exercised through campus Contracts and Grants Offices.

RECOMMENDATION

We recommend that the University:

- Develop a clear definition of a gift, to be implemented systemwide
- Rigorously enforce university policy so that private, profit-motivated research will not be classified as gifts.

BENEFIT

Research projects would be subjected to proper controls through the Contracts and Grants Offices, ensuring that the best interests of the University and the State are considered. An undetermined amount of indirect cost recovery would accrue. Additional projects would enter the reporting system, thereby minimizing potential for duplication of research effort.

THE STATE IS NOT REIMBURSED
FOR INDIRECT CHARGES COLLECTED
FROM PRIVATE SPONSORS OF RESEARCH

State allocations provide funding for most of the University's indirect (overhead) functions. This is recognized in that the State is reimbursed part or all of the indirect charges associated with state or federally funded contracts and grants. The State is not reimbursed, however, when indirect charges are made for privately sponsored research, and results in the University being funded twice for the same activity.

The University's policy is to recover indirect charges from sponsors of extramurally funded contracts and grants. Disposition of these funds depends upon the source from which they were derived. Specifically:

1. Federally funded contracts and grants - After deducting some administrative costs, 50 percent is transferred to the Regents Opportunity Fund and 50 percent is returned to the State as a general fund offset
2. State-funded contracts and grants -
 - a. If the money is entirely state funds, the entire amount is returned as a general fund offset
 - b. If the money is partially federal funds, the federal portion is treated as in 1 above while the remainder is returned to the State as a general fund offset

3. Privately funded contracts and grants - The indirect funds collected from these sponsors are not returned to the State, but are deposited in the University Education Fund and used for discretionary purposes.

The disposition of contract and grant indirect receipts is governed by agreements between the University and the Department of Finance. The first agreement, which was negotiated in 1956, did not include receipts from federal grant overhead, which were small at the time. The next agreement, negotiated in 1963, included both federal contract and grant receipts, but did not cover private contracts and grants. The recommendation on disposition of private contract and grant overhead is contained in the June 19, 1964 Regent's Finance Committee minutes:

At present there are two Current Funds Reserves, one in the amount of \$229,929.72 derived from 1962-63 overhead on private gifts and grants and one in the amount of \$34,557.81 derived from 1962-63 unexpended balances of lump-sum contracts. Prior to negotiation of the new agreement with the State concerning disposition of overhead, balances from the above sources were included with contract overhead for addition to the University Fund. However, the new agreement with the state did not encompass these two items and when the policy on the disposition of overhead was subsequently presented to the Regents as a result of the state agreement, only federal grant and federal contract overhead were included with the thought that the above items could be considered at a later date....It is proposed that, commencing with the balances on hand, a fund functioning as an endowment be created which could be available to the President for allocation to meet requests for funds for the educational program of the University for which other sources of funds are not available.

The Legislature voiced its dissatisfaction with the agreement on overhead when it introduced an Assembly Concurrent Resolution on April 11, 1967.

Whereas, These funds represent the reimbursement of University overhead costs related to administration of non-state-financed projects; and...

Whereas, The present agreement for the deposition of overhead funds has lessened the prerogative of legislative review by delegating to the Department of Finance the review of that portion allocated to the Regents; and

Whereas, The state pays for the administrative costs of federal contracts and grants through its appropriation to the University, although it receives only half of the federal overhead funds intended for this purpose and must apply this as a source of income for the University in the Governor's Budget; and...

Resolved by the Assembly of the State of California, the Senate thereof concurring, That the present policy of equal sharing of receipts of overhead reimbursements should be terminated in the 1968-69 fiscal year, and the state should apply all such overhead funds to the Governor's Budget....

Resultant action did not terminate the 50-50 division of overhead receipts, but commencing in 1968-69, the Regent's portion of these receipts were included as part of the regular budget development and review process. The latest agreement was negotiated in 1967.

The State of California provides the primary support for functions which comprise overhead. The following table lists these functions along with their corresponding percentages to be applied against the modified total direct costs for private contracts and grants.

PREDETERMINED INDIRECT COST RATES TO BE APPLIED
DURING THE PERIOD JULY 1, 1978 TO JUNE 30, 1980
NONFEDERAL ORGANIZED RESEARCH RATES, PERCENT

<u>Function</u>	<u>On-Campus</u>	<u>Off-Campus</u>
Maintenance and operation	4.68	
Building use allowance	1.32	
Equipment use allowance	1.56	
General administration	6.85	6.85
Libraries	1.16	
Department administration	12.11	12.11
Student services	<u>1.96</u>	<u> </u>
	29.64	18.96
Applicable Rounded Rates	29.6*	19.0*

* The applicable rounded rates were 26.0 and 16.0 prior to July 1, 1978.

CONCLUSION

The State is not reimbursed when indirect charges are paid by private sponsors of research. Therefore, the University is funded twice for the same activity.

RECOMMENDATION

We recommend that the Department of Finance negotiate a new agreement with the University for disposition of indirect cost receipts, which includes private contracts and grants.

BENEFIT

Receipts from private contract and grant overhead were over \$2.5 million for 1975-76, and all or part of this could be used as an offset to state-supplied general funds.

POLICIES AND PROCEDURES ARE
INADEQUATE TO DISCLOSE AND PREVENT
CONFLICTS OF INTEREST FOR UNIVERSITY
RESEARCHERS

University policies do not require faculty members to report financial interests or outside consulting activities. The University has contended that the only true safeguard against conflict of interest situations is the integrity of the faculty and staff. Our audit disclosed cases of possible conflict of interest in research, from which we conclude that university policies and procedures are inadequate and full disclosure of outside activities should be required.

Academic employees of the University of California may devote up to 50 percent of their time to research and up to one day per week on private consulting. The time allowed for these activities is not specified in university regulations and varies with individual faculty. According to the 1978 Handbook for Faculty Members of the University of California, "...it is left to faculty members to determine allocation of their time, always with the object in mind that no responsibility shall be slighted." This policy is consistent with that which we found in two large privately funded California universities.

A new university policy has been proposed to the Regents which provides for limited disclosure of faculty members' outside professional activities. The policy requires the faculty to report outside professional activities, compensated or uncompensated, only if they wish recognition for these in the academic review process. No reporting of professional activities is required during the faculty member's free quarter.

University Policies and Procedures
Have Not Prevented Conflicts of
Interest in Research Activities

In our audit of 230 research projects of private, profit-motivated sponsors we found four examples in which the principal investigator was either president, partner or a board member of the firm financing the related research. In one case, a statement in a letter to the sponsoring firm (a manufacturer of electronic equipment) from the principal investigator who is also on the board of directors stated:

The plan is as follows: For the months of January, February and March I expect to pay (name deleted) as a Research Assistant at the rate of \$415.00 per month. His task will be to supervise a team of graduate students in the performance of the research called for under the contract. In this way he will be in the laboratory carrying out his own dissertation research and will be in direct contact with the graduate students who will be doing this work for course credit. So we get the size of a team for basically the experience.

The university policy, as stated in Regulation No. 4 (revised), is to recover all expenses for outside activities (see page 11 of this report).

The university systemwide internal audit staff has investigated conflicts of interest involving research which have been brought to their attention. A letter to the University Vice President from the Director of Audits relative to a conflict of interest investigation stated:

The attached audit report discloses a situation which we have frequently encountered in recent years. And how much is going on about which we are unaware is anybody's guess. Although the situation described in this report is typical, it is on the low side with respect to the magnitude of dollars involved.

The audit above involved a faculty member who formed a private company to do research which was similar to that accomplished through grants administered by him through the University. The faculty member did not own an industrial shop and used the university facilities to manufacture and test the product of his private company. Concurrently, the faculty member was the principal investigator on two university administered grants whose funds were used in his private company for materials and facilities, payroll costs and travel expenditures.

Another example involved two faculty members from a University of California Medical School. Medical school faculty belong to physician's pay plans in which all or part of patient income above a specified amount is paid to the University. The two faculty members had formed a medical-practice corporation through which income was derived and not reported to the University. The systemwide internal audit report resulted in a request to reimburse the University and dissolve the professional corporation. In a letter to the Dean of the Medical College, the two staff members wrote:

Another cause of concern was the matter of incorporation. We would like you to know that even though we are aware of several faculty members at UCLA being incorporated, we are prepared to put the corporation in "limbo." We were advised by our accountant and counsel that to completely terminate the corporation would create serious tax problems. Instead we propose to "put the corporation to sleep." At the same time, we would start to bill as individuals in similar fashion to other UCI faculty members who have a limited private practice.

CONCLUSION

Lack of adequate policies and procedures requiring disclosure of outside professional activities has produced a situation in which conflicts of interest may occur in research projects.

RECOMMENDATION

We recommend that the Office of the Vice President, Academic and Staff Personnel Relations modify the policy on outside professional activities of faculty members to require reporting of all professional activities, compensated or uncompensated, for the entire year.

BENEFIT

Full disclosure of outside professional activities should reduce the occurrence of conflict of interest and should (1) reduce the incidence of university subsidy to private research and (2) increase revenues through the medical schools.

OTHER PERTINENT INFORMATION
REQUESTED BY THE LEGISLATURE

ORGANIZED RESEARCH UNITS

Approximately half of the \$301 million research expenditure we investigated at the University for 1975–76 was through Organized Research Units (ORU). An ORU is established to administer research projects when substantial extramural funds and extensive facilities are required to support interdisciplinary projects that cut across departmental, college and campus boundaries. We investigated the largest ORU on each campus and found the Agricultural Experiment Station to be of special interest since it was the largest on three campuses and had an expenditure of over \$51 million.

Agricultural Experiment Stations

The University of California is a state land grant university established over a century ago under the federal Morrill Act of 1867 (7 U.S.C.A. Section 301 et seq.) to provide publicly supported teaching, research and public services. The Morrill Act authorized federal subsidy to state institutions and was followed by the Hatch Act of 1887 (7 U.S.C.A. Section 361 et seq.), which provided federal financing for agricultural research. The Amended Hatch Act (7 U.S.C.A. Section 3616) states:

It is further the policy of Congress to promote the efficient production, marketing, distribution, and utilization of products of the farm as essential to the health and welfare of our people and to promote a sound and prosperous agriculture and rural life as indispensable to the maintenance of maximum employment and national prosperity and security. It is also the intent of Congress to assure agriculture a position in research equal to that of industry, which will aid in maintaining an equitable balance between agriculture and other segments of our economy.

Agricultural research is administered through the Systemwide Vice President of Agriculture and University Services Office in Berkeley. Research is performed at the Davis, Berkeley and Riverside campuses. The Agricultural Experiment Station expenditure of over \$51 million in 1975-76 provided over 550 scientist-years effort proportioned roughly 50 percent to the Davis campus and 25 percent each to Berkeley and Riverside.

Each campus has its own research strengths which are encompassed in the three major research goals of the statewide Agricultural Experiment Station:

- To develop knowledge that will ensure a continuing supply of nutritious foods, useful fibers and natural resource products in adequate amounts at low cost without adverse effects on the physical environment or consumer
- To develop knowledge that will ensure a physical environment of high quality by enabling its users to more wisely manage and enjoy their natural resources

- To develop knowledge contributing to the improvement of the public health and economic and social surroundings, thereby strengthening human resources to more fully enjoy and participate in a complex democratic society.

Academic employees in most departments of the University are given nine months employment (appointments) to perform instruction and research (I&R). Most academic employees of the Agricultural Experiment Station, however, have 11 month dual appointments. A dual appointment for example may be 75 percent in the Agricultural Experiment Station for research, and 25 percent in the academic Department of Agriculture for I&R. Both components of salary are normally provided through state funds.

Source of Funds

Funds for operating the Agricultural Experiment Station are obtained primarily from the State, Federal Government, gifts and private grants and California marketing orders as shown in Appendix A. The State provides over 66 percent of total Agricultural Experiment Station funding. The Federal Government provides about 22 percent of Agricultural Experiment Station funding; of which 17 percent is from contracts and grants, and only 5 percent is "Hatch" or discretionary funds. The term "Hatch" is used here to describe federal funds administered by the

Cooperative State Research Service (CSRS) and includes Hatch, Regional Research and McIntire Stennis funds. These funds are discretionary in that the Agricultural Experiment Station may specify which CSRS approved projects it wishes to receive them. Most of the 1,116 active projects are CSRS approved.

Faculty salaries are paid primarily from state appropriations and can also be considered discretionary since the Agricultural Experiment Station decides which project the researcher works on. State and federal appropriations comprise about 70 percent of the total funding which can be used at the discretion of the Agricultural Experiment Station.

Types of Research

Research programs within the statewide Agricultural Experiment Station are classified under seven broad program headings comprised of 28 subprograms. Appendix B shows a distribution of scientist-years effort among these areas for fiscal year 1975-76.

A review of projects active in January 1978 shows the activity within some current areas of interest:

<u>Area of Interest</u>	<u>No. of Active Projects</u>
Mechanization	32
Farm Labor and Rural Development	29
Social Impact Analysis	8
Small Farms	12

How Research Projects Are Started

Interviews with over 70 faculty members indicate that research projects generally originate from the individual researcher. The research performed represents areas in which the faculty member has interest and competence. Established scientists may change the direction of their research due to the availability of outside funding influences. Under the current system, the principal influence the University can exert on the direction of research is through hiring and promotional procedures. According to the Vice President of Agriculture and University Services, freedom of inquiry is the basis of academic tradition, and while the Division may encourage new lines of research and establish priorities for such research, the choice of research lies with the individual faculty scientist.

The mechanics of originating a research project were summarized in a paper prepared for the October 21, 1977 Regents meeting:*

Every researcher in the Statewide Agricultural Experiment Station develops a project statement that includes title, cooperation, purpose, objectives, justification, a review of past research in the disciplinary area, present outlook or impact of expected results, research procedures to be employed, and a budget. The project statement is then reviewed by peers and others, depending upon the nature of the research subject and potential sources of funding. The proposal is then approved or disapproved by the department head or by a campus Experiment Station Associate Director before being submitted to the Director of the Statewide Agricultural Experiment Station.

* James B. Kendrick, Jr., "A Report of Research in the California Agricultural Experiment Station."

Audit Sample of Research Projects

A random sample of 100 research projects was selected from the Agricultural Experiment Station and evaluated for funding source. Fifty samples were selected from the Davis campus, while 25 each were chosen from Berkeley and Riverside.

A research project may not necessarily consist of a single work task, but may be a "blanket" covering a number of individual activities under an overall technical specialty. Consequently, work performed under a single Agricultural Experiment Station project number may be funded by more than one sponsor.

There were 275 fund sources for the 100 projects sampled, which averages almost three per project. State appropriations furnished one source of funding for all active projects. Since there are numerous sources of discretionary funding, multiple funding sources do not guarantee more than one work task for a single project.

We became concerned that significant amounts of cost sharing may occur on research sponsored by private, profit-motivated entities and they might exert an undue influence on overall research. Our concern resulted from (a) large amounts of discretionary funds which are available and (b) the nature by which research projects are developed.

Thirty-eight of the 100 projects investigated used funds from gifts or marketing orders. As was indicated earlier in this report, gifts are a common mechanism by which private, profit-motivated entities fund research. The following table summarizes data for the 38 projects funded by gifts and marketing orders.

1975-76 EXPENDITURES FOR ACTIVE PROJECTS
RECEIVING GIFTS OR MARKETING ORDER FUNDS--
FROM RANDOM SAMPLE OF 100 PROJECTS

Location of University	Total Projects Reviewed	Projects* with Gifts or Mkt. Ord.	Gifts*	Gifts &* Mkt. Ord.	Percent* of Total Expenditure	Total* Expenditure
Davis	50	16	\$ 79,436	\$231,891	22.3	\$1,038,710
Riverside	25	15	82,656	93,479	10.7	877,771
Berkeley	<u>25</u>	<u>7</u>	<u>33,955</u>	<u>33,955</u>	9.9	<u>343,707</u>
	<u>100</u>	<u>38</u>	<u>\$196,047</u>	<u>\$359,325</u>	15.9	<u>\$2,260,188</u>

* Includes data for only those projects in which gifts or marketing orders occur.

Gifts and marketing orders fund less than 16 percent of the total cost of the projects in which they occur. The Agricultural Experiment Station does not isolate cost and effort of research for private sponsors; therefore, it is difficult to determine the true extent of cost sharing. The foregoing does, however, illustrate the potential for cost sharing in research sponsored by private, profit-motivated entities.

ADMINISTRATION OF CONTRACTS AND GRANTS

With the exception of items cited previously, we did not find poor policy enforcement to be characteristic of the entire system. Specific problems, some of which are cited below, were restricted to individual campuses.

Transfer of Supplies Charges

Analyses of research sponsored by private, profit-motivated entities indicate the incidence of cost transfers for supplies was relatively low overall. Three of the campuses did have a higher incidence of cost transfers than the others, but due to the limited number of contracts/grants evaluated, projections to the overall performance for all contracts/grants cannot be made. One campus transferred disallowed federal purchases to private contracts/grants. A sample of reasons for cost transfers is given below:

- Prior approvals not received for charges to federal funds. Transfer charge to unrestricted non-federal funds
- Expense charged after termination date. Transfer to non-federal grant
- Charges are applicable to either account and this transfer is necessary to close out NSF grant.

Poor Contract Clause

Wording in a standard contract clause was such that, if enforced, it could result in substantial expense to the University. The contract was negotiated at systemwide headquarters and appeared in numerous contracts/grants for some campuses. The contract states:

Any computer programs developed by the INSTITUTION during the course of the work or modified (emphasis added) for use in this work will be supplied in a form which may be used by others independently of the INSTITUTION'S proprietary programs or computer configurations. The programs will be transmitted to EPRI in a machine-independent language, such as FORTRAN IV, on punched cards or magnetic tape in the number of copies set forth in the schedule. Suitable documentation, a written program description and copies of the source program shall also be supplied as set forth in the Schedule.

It is not uncommon to modify existing scientific computer programs for various jobs. The above contract clause could result in a substantial expense even though the contract/grant had not paid the primary cost of computer program development. The Systemwide Director of Contracts and Grants stated the clause would be changed and a letter sent to the campuses.

Contracts and Grants
Bypass Controls

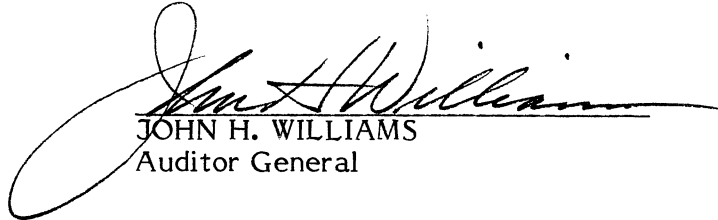
On one small campus several active contracts/grants sponsored by private, profit-motivated companies bypassed all controls of the Contracts and Grants Office in violation of specified university procedures. A note in the Contracts and Grants Office file stated:

Attached is an award from Monsanto in the amount of \$26,000 for which there was no formal proposal submitted or academic review/approval as far as I know. (name deleted) of (name deleted) office told (name deleted) about the award when she deposited a \$26,000 check for this research project.

Employment of Relatives

We checked the personnel files of staff involved in our sample of 230 contracts/grants and found no unusual incidence of employment of relatives by principal investigators.

Respectfully submitted,



JOHN H. WILLIAMS
Auditor General

Date: August 29, 1978

Staff: Richard V. Alexander
Enrique G. Farias
Ross A. Luna
Kurt R. Sjoberg
Allison G. Sprader

UNIVERSITY OF CALIFORNIA SYSTEMWIDE ADMINISTRATION

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Office of the President

BERKELEY, CALIFORNIA 94720

August 28, 1978

Mr. John H. Williams, Auditor General
Joint Legislative Audit Committee
925 "L" Street, Suite 750
Sacramento, California 95814

Dear Mr. Williams:

In reply to your letter of August 23, I am forwarding a staff analysis, in which I concur, of the audit findings and recommendations resulting from your review of privately supported research at the University.

As the analysis indicates, the University strongly disagrees with some of the findings and conclusions; however, I acknowledge that there is a need for improvement in certain areas and the University is already proceeding with the development of appropriate policies, as well as more rigorous enforcement of current policies.

I regret that a more comprehensive response could not be made within the limited time available. As we proceed with our review, therefore, we may wish to amplify our response.

Sincerely,

Handwritten signature of David S. Saxon.

David S. Saxon
President

Attachment

cc: Vice President William B. Fretter
Associate Vice President Thomas E. Jenkins
Special Assistant Lowell Paige

August 28, 1978

ANALYSIS OF DRAFT REPORT OF THE
OFFICE OF AUDITOR GENERAL ON PRIVATELY SUPPORTED RESEARCH

Following is an analysis of the audit results and recommendations as set forth in the Auditor General's draft report based on a review of research projects funded by "private, profit-motivated entities" and a review of activities of large Organized Research Units, which included the Agricultural Experiment Station.

The analysis will focus first on the Summary section of the report which summarizes the audit findings and the recommendations which evolved from the review.

Audit Finding

Some research activities sponsored by private, profit-motivated entities are subsidized by State funds. This results primarily because indirect (overhead) charges are reduced or eliminated and there is no charge for the principal investigator's time.

Audit Recommendation

Develop and enforce procedures whereby all costs of research for private, profit-motivated entities will be borne by the sponsor.

Analysis

This finding and the recommendation reflect a fundamental philosophic difference between the Auditor General's concept of research financed by certain private entities and the University's concept of such support.

The Auditor General's position seems to be based on an assumption that research is done at the behest of private, profit-motivated entities strictly on a business basis. While this occasionally may occur (and the University is committed to strengthening its review processes to prevent such occurrences) in accepting such outside funds, the University does not undertake to perform specified services that divert faculty members from their principal responsibilities. Extramural funds simply help the University and the faculty to carry out their appropriate functions. This concept is embodied in University Regulation 4 and the principles underlying it that establish basic University academic policy relative to sponsored projects which is paraphrased in the University's Contract and Grant Manual as follows:

To accomplish its aims of providing higher education, advancing knowledge, and contributing to the welfare of the State, the University accepts funds and enters into agreements for research undertakings only when (1) such undertakings provide its faculty members with the opportunity to gain experience and knowledge of value for their teaching and research, and (2) the projects are suitable for the University because the involved faculty members may make worthy contributions to knowledge, in conjunction with students whenever that is possible, or because appropriate public service is performed.

A large part of the research conducted in the University is now and for a number of years has been supported by extramural sponsors. In relation to the State, this simply means that extramural sponsors have assumed a large part of the burden of supporting the research which has permitted the University to achieve distinction and even preeminence in a number of fields of graduate instruction. Research sponsored by extramural agencies is in areas that are of basic interest to the University in the pursuit of its goals and existing or desired programs. Thus the role of the State over the years has been to provide support for academic positions, recognizing that during the academic year one of the professor's ordinary assigned duties is research work, regardless of whether or not he or she has obtained a contract or grant to help defray the costs of supplies and equipment, to support graduate students, and to support the faculty member and his or her students for additional work on the project during the summer.

As a normal practice, the teaching load of a professor participating in research, regardless of sponsorship, is not reduced. It is the same as that of a colleague who has no grant or contract. In exceptional cases, the faculty member's departmental appointment may be reduced to less than full time to enable him or her to devote the remaining time to work in an Organized Research Unit or on an extramurally funded project for a quarter or two. In these rare cases, it is intended that the portion of his or her time dedicated to these activities be paid from extramural fund sources, and that the released portion of the faculty member's salary be used to employ a temporary member of the teaching staff to help carry the department's full teaching load.

Funds received from private entities for the support of research should be subject to review to determine that such research conforms to University regulations and, when appropriate, is subject to policies and procedures governing the conduct of sponsored research. The University is currently developing a policy which will provide more specific guidance concerning such reviews including application of indirect cost rates

where sponsored projects are involved as contrasted to outright gifts for support of research.

Audit Finding

Research projects for private, profit-motivated entities are often improperly processed as gifts thereby avoiding indirect charges and proper administration as contracts or grants. A large number of gift-sponsored research projects are for proprietary agricultural or pharmaceutical products.

Audit Recommendation

Rigorously enforce University policy so that private, profit-motivated research will not be classified as gifts.

Analysis

The University has long had a policy that provides for the review of all gifts, including private gifts, grants and contracts to assure that the University's regulations governing sponsored research projects are observed. More rigorous enforcement of this policy is clearly needed and is being put into effect.

Audit Finding

The State is not reimbursed for indirect (overhead) charges collected from private sponsors of research. Activities comprising the indirect charge are paid primarily from state funds, yet the University retains indirect charges paid again by private research sponsors.

Audit Recommendation

Negotiate with the Department of Finance for a new agreement whereby the State will be reimbursed for receipts of indirect charges to private sponsors of research.

Analysis

The present disposition of indirect cost recoveries is based upon the terms of the agreement between the University and the Department of Finance currently in effect.

Indirect cost recovery funds from private contracts are deposited in the University's Educational Fund. These funds allow The Regents the flexibility to respond immediately to program changes and to other funding urgencies. For example, these funds have been used

-- to provide phase-out support for the Extended University program when the State discontinued funding;

- to provide program start-up costs prior to the beginning of State support (e.g., faculty recruitment, curriculum development);
- to respond to legislative requests, (e.g., evaluation of student support services at the University's law schools), and;
- to fund experimental outreach programs (e.g., Berkeley Threshold Program).

The Regents' discretionary use of these funds has enriched both the University and the State by helping to maintain the excellence of the University.

They have provided a necessary flexibility in fiscal management which has improved efficiency as well as quality and has provided students opportunities to complete their programs even though State support for the Extended University was abruptly withdrawn.

Audit Finding

Policies and procedures are inadequate to disclose and prevent potential conflicts of interest for university researchers. We found cases of potential conflict of interest which we feel cannot be prevented by current or proposed University of California policies and procedures.

Audit Recommendation

Require faculty members to report all professional activities, compensated or uncompensated, for the entire year.

Analysis

The basis for the recommendation, according to the report, is the lack of safeguards within existing policies and procedures to limit or prohibit faculty members from engaging in activities that conflict with existing University time commitments or the use of University facilities in the pursuit of outside professional interest.

The recommendation is consistent with the proposed policy on consulting currently under consideration by the Academic Senate, The Regents and Systemwide Administration. The proposed procedures, which will address some of the aspects of the conflict of interest problem, provide for:

1. A statement of standards of conduct for faculty members respecting full service to the University and other potential conflicts of interest.

2. Annual reporting to department chairs of all outside professional activities, compensated or uncompensated.
3. Careful consideration of these reports of outside professional activities at the departmental level as part of the annual review required by University academic personnel policy of the performance of each member of the department for possible personnel action (merit salary increase and/or promotion).
4. Mandatory reporting by department chairs to the Dean or other appropriate higher administrative officer of cases of abuse that cannot be resolved at the department level.
5. Mandatory reporting by the Dean to the Chancellor of cases that cannot be resolved at the Dean's level.
6. Consultation by the Chancellor with the Divisional Academic Senate Committee on Budget or Academic Personnel (or other appropriate faculty committee) regarding any formal action that may be brought against an individual.
7. In case of formal charges, adherence to the provisions spelled out in the "University Policy on Faculty Conduct and the Administration of Discipline," approved by The Regents in June, 1974. This policy provides for formal sanctions ranging from written censure to dismissal from the employ of the University.
8. Annual reporting by each Chancellor to the President on the impact of outside professional activity on the teaching and research activities of the campus, the report to be developed in consultation with the Committee on Budget or Academic Personnel of the campus Academic Senate Division.

This policy statement does not nor do the implementing provisions provide for reporting of activities for the entire year. The University's contractual obligation with faculty members is generally either for nine or eleven months (in a few instances, faculty members have appointments for one academic quarter or have half-time appointments). It would be unwise and perhaps illegal for the University to assume that its contractual relationship extended beyond the period of service. Clearly, the University recognizes its legitimate right and responsibility to insure full service and to prohibit conflicts of interest that occur during the contractual period. Thus the proposal provides for full reporting during the period of academic appointment.

In addition, while annual reporting is required during the period of appointment (nine or eleven months), the policy provides for all outside professional activities being voluntarily reported at the time of academic review for merit increase or promotion (two year interval - Assistant Professor and three year interval - Associate and Full Professor). The rationale for the latter provision is that the consulting and other outside professional activities form a part of the total record of scholarship no matter where and when performed. Faculty peers need to be apprised of this information in the review process. This provision will, as a result of strong faculty collective and individual integrity, clearly provide all of the data necessary to make informed judgments both by faculty peers and administration regarding the merits of outside professional activities engaged in by an individual faculty member.

Thus the policy has two important and related aspects. First, it provides annual reporting during the period of appointment as a means of curbing abuses in the allocation of time or the use of University facilities. The second component is the requirement, through rigorous peer review, for justification for outside professional activities. These policy clarifications are being undertaken with care to insure we maintain the benefits to the public and students of outside professional activities while we control potential abuses.

Additional Comments

The following comments relate to the detailed audit results which commenced on page 10 of the report and which served as a basis for the summarization of findings and recommendations commented on above.

On page 10 the statement is made that "We estimate that at least 64 percent of research sponsored by private, profit-motivated entities incurred state subsidized expenditures through reduced or eliminated indirect (overhead) payment or free use of principal investigator's time (emphasis added). The University concedes that there may have been circumstances under which it would have been appropriate to obtain reimbursement for indirect costs. This is a situation the University intends to correct. However, to the extent such research conformed to the University's concept of sponsored research the reference to "free use of principal investigator's time" as a subsidization is not valid. The principal investigator is in fact carrying out his or her University functions, for faculty are expected to do research.

On pages 14 and 15 the comment and example concerning the University's contribution to a research project again reflects

a lack of understanding of the University's research program and ways in which it is supported. If the project is appropriate to the University's and faculty member's research objectives it is legitimate to provide partial support from University fund sources (including State support).

The same lack of understanding carries over in the recommendations on page 16 which state:

- That full cost of the principal investigator's salary be recovered for all research projects sponsored by private, profit-motivated entities
- That the University share indirect and principal investigator salary costs out of their discretionary funds for those projects where the private, profit-motivated sponsor does not pay the total cost and the University feels the research should be undertaken.

The latter recommendation seems not to recognize that the State has a responsibility for funding at least some portion of University research.

On page 20 it is recommended that University policy be rigorously enforced "so that private, profit-motivated research will not be classified as gifts." The auditors appear not to understand that the nature of the terms and conditions associated with funds received, rather than the source, determines whether such funds should be considered a gift or a grant.

With respect to the example on page 27 of the report concerning medical school faculty the new Uniform Medical Compensation Plan provides:

"Clinical faculty members may not be separately incorporated or be members of a professional corporation or the legal equivalent thereof."

The Plan, which went into effect in July 1978, requires that faculty members participating in the Plan sign a statement recognizing their obligations to report all income regardless of source to the University. The billing and audit procedures contained in the Plan Guidelines are designed to provide internal controls to insure the Plan procedures relative to billing, fee collection, overhead charges and total compensation can be monitored.

**EXPENDITURES BY THE EXPERIMENT STATION AND COOPERATIVE
EXTENSION, 1975-76, ACCORDING TO SOURCE OF FUNDS**

Fund Source	Experiment Station		Cooperative Extension		TOTAL	
	\$1,000's	Pct.	\$1,000's	Pct.	\$1,000's	Pct.
STATE						
Appropriations --						
General and Special	\$33,238	64.9	\$13,377	54.2	\$46,615	61.4
Contracts and Grants --						
State Agencies	689	1.3	86	0.3	775	1.0
Subtotal -- State	\$33,927	66.2	\$13,463	54.5	\$47,390	62.4
FEDERAL						
Appropriations --						
Hatch and McIntire-Stennis	\$ 2,601	5.1	-	-	\$ 2,601	3.4
Smith-Lever	-	-	\$ 3,616	14.7	3,616	4.8
EFNEP (Nutrition Educ.)	-	-	2,467	10.0	2,467	3.3
Contracts and Grants --						
USDA Contracts and Grants	1,342	2.6	96	0.4	1,438	1.9
Other Federal Agencies	7,452	14.5	252	1.0	7,704	10.2
Subtotal -- Federal	\$11,395	22.2	\$ 6,431	26.1	\$17,826	23.6
OTHER						
California Marketing Orders	\$ 1,870	3.7	\$ 103	0.4	\$ 1,973	2.6
Endowments	811	1.6	15	0.1	826	1.1
Gifts and Private Grants	2,700	5.3	155	0.6	2,855	3.8
Sales and Services	309	0.6	258	1.1	567	0.7
Miscellaneous	215	0.4	44	0.2	259	0.3
Subtotal -- Other	\$ 5,905	11.6	\$ 575	2.4	\$ 6,480	8.5
COUNTY	-	-	\$ 4,200	17.0	\$ 4,200	5.5
GRAND TOTAL	\$51,227	100.0	\$24,669	100.0	\$75,896	100.0

Source: James B. Kendrick, Jr., "A Report of Research in the California Experiment Station", presented at the UC Board of Regents meeting October 21, 1977.

UNIVERSITY OF CALIFORNIA--AGRICULTURAL EXPERIMENT STATIONS
SCIENTIST-YEARS IN VARIOUS PROGRAM AREAS, 1975-76

	<u>Number of Scientist-Years</u>
I. Renewable Natural Resources Conservation and Management	54.8
A. Improvement of Quality and Quantity of Forest and Range Production	(11.4)
B. Inventory and Appraisal of Land, Air and Water Resources	(29.4)
C. Conservation and Management of Land, Air and Water Resources	(13.0)
D. Basic Research in Natural Resource Conservation and Management	(1.0)
II. Environmental Enhancement and Recreation	62.7
A. Management of Wildlife and Fisheries	(10.5)
B. Outdoor Recreation	(3.3)
C. Using Plants to Enhance the Environment	(17.2)
D. Environmental Pollution	(31.2)
E. Basic Research in Environment and Recreation	(0.5)
III. Production Capacity and Efficiency of Domestic Plants and Animals	148.4
A. Physical and Economic Aspects of Production Systems	(11.8)
B. Improvement of Quality and Quantity of Field, Fruit and Vegetable Crops	(76.9)
C. Improvement of Quality and Quantity of Domestic Animal Production	(23.2)
D. Basic Research in Production Capacity and Efficiency of Domestic Plants and Animals	(36.5)

	<u>Number of Scientist-Years</u>
IV. Product Improvement and Marketing	57.8
A. Analysis of Market Demand and Market Performance	(9.2)
B. Product Development--Processing Storage and Standards	(44.2)
C. Basic Research in Product Improvement and Marketing	(4.4)
V. Protection of Plants and Animals	146.6
A. Control of Pests Affecting Plants	(39.7)
B. Control of Plant Disease	(36.6)
C. Protection of Domestic Animals and Wildlife	(13.5)
D. Control of Weeds and Wildfire	(5.8)
E. Basic Research in Protection of Plants and Animals	(51.0)
VI. Family and Consumer Welfare	65.3
A. Consumer Choice	(21.2)
B. Health and Safety	(25.5)
C. Food and Nutrition	(12.7)
D. Basic Research in Family and Consumer Welfare	(5.9)
VII. Community and Economic Development	16.1
A. Foreign Economic Development	(1.4)
B. Regional and Community Economic Development	(13.5)
C. Basic Research in Community and Economic Development	<u>(1.2)</u>
GRAND TOTAL--I through VII	<u>551.7</u>

GLOSSARY

- Cost Sharing - Occurs when the sponsor of a research project does not bear the total project cost. In this case, the University bears the remaining cost.
- Cost Transfer - Occurs when an item is first charged against one contract/grant then later transferred to another contract/grant.
- Indirect (overhead) Costs - Those costs which have been incurred for common or joint objectives and which cannot be identified specifically with a particular project.
- Organized Research Unit (ORU) - A unit established to administer research projects when substantial extramural funds and extensive facilities are required to support interdisciplinary projects that cut across departmental, college and campus boundaries.
- Principal Investigator - One who heads a sponsored research project and will personally participate in the project in a significant manner.
- Private, Profit-Motivated Entities - Profit-making companies and corporations as well as nonprofit institutes representing a single industry and funded by its members.

Office of the Auditor General

cc: Members of the Legislature
Office of the Governor
Office of the Lieutenant Governor
Secretary of State
State Controller
State Treasurer
Legislative Analyst
Director of Finance
Assembly Office of Research
Senate Office of Research
Assembly Majority/Minority Consultants
Senate Majority/Minority Consultants
California State Department Heads
Capitol Press Corps