

4/5/39

205-D  
Univ California  
Radiation  
39160

It was, on motion,  
RESOLVED that the sum of Fifty thousand dollars (\$50,000), or as  
RF 39042 much thereof as may be necessary, be, and it hereby is,  
appropriated to the UNIVERSITY OF CALIFORNIA for expenses  
of CYCLOTRON RESEARCH during the three-year period July 1,  
1939 - June 30, 1942, under the direction of Professor  
E. O. Lawrence of the Radiation Laboratory, payments to  
be made upon presentation of annual estimates but not to  
exceed a total of \$20,000 in any one year of the period,  
any balance remaining unexpended as of June 30, 1942, to  
revert to the Foundation.

UNIVERSITY OF  
CALIFORNIA -  
CYCLOTRON  
RESEARCH

The following were the considerations presented:

Natural Sciences - Isotopes and Biology

Previous Interest: On January 21, 1938, the Foundation appropriated \$30,000 for completing the essential equipment of the Radiation Laboratory at the University of California during the two-year period, February 1, 1938 - January 31, 1940. This was supplemented on February 24, 1939, by a grant in aid of \$2,000.

General Description: Professor Lawrence created and developed the cyclotron, the magnetic resonance accelerator which has been chiefly responsible for the recent advances in smashing the atom, for providing artificially radioactive substances, and for furnishing extremely high voltage radiations which have important but as yet largely unexplored biological and medical applications. Professor Lawrence is now building a new cyclotron which, when completed, will be much the most powerful in the world. Biology and medicine will have first call on this new machine. Counting auxiliary equipment and the new special laboratory the cyclotron development at Berkeley has cost over a third of a million dollars, toward which The Rockefeller Foundation has contributed slightly less than one-tenth.

The new cyclotron is expected to be in operation by April 1. Professor Lawrence has, in addition to regular staff, a large international group of investigators including fellows from the National Research Council, the Commonwealth Fund, and the



Guggenheim Fund. As large a project as this, including both building and equipment for cyclotron research, as well as the running expenses of many important research projects, requires a large budget and for this the University and a number of outside organizations are contributing liberally.

UNIVERSITY OF  
CALIFORNIA -  
CYCLOTRON  
RESEARCH  
(Continued)

The budget of this radiation laboratory involves certain basic costs, and the costs of the three parts of their active research program. The basic costs include \$12,200 for general costs (supplemental salary of the director, salary of the director for medical studies, salary of assistant director, secretary, mail, telephone, etc.) and approximately \$36,000 for the cost of operating, maintaining and developing the cyclotron (two physicists, eight graduate student operators, radio maintenance engineer, general maintenance engineer, power, supplies, repairs, new developments, etc.). Toward these basic costs the University of California contributes slightly over \$20,000.

The cyclotron will be used for three interrelated research programs: 1) in pure physics; 2) a clinical program related largely to cancer; and 3) a program in basic research in biology and medicine. Each of these programs involves special expense and each, in turn, bears some portion of the basic costs listed above. The research in pure physics is thus supported by a \$5,000 annual grant from the Research Corporation and by contributions from the University, as mentioned above. The clinical program is being financed to the extent of \$23,000 annually by the National Advisory Cancer Council, approximately half of this sum going for direct clinical costs, and the other half applying to the basic costs listed above.

The program and budget for the basic research in biology and medicine, as presented to us by the California authorities, involve a total of \$27,420 annually, of which \$18,120 would apply specifically to the biological research program and \$9,300 would represent this program's share of the basic costs.

Finances: Thus the entire proposed budget of this radiation laboratory is approximately \$75,000 annually, of which \$20,000 is contributed by the University of California, \$5,000 by the Research Corporation, \$23,000 by the National Advisory Cancer Council, while \$27,000 has been requested from The Rockefeller Foundation.

The officers are not prepared to recommend so large a grant, and suggest an appropriation of \$50,000, available over three years, of which not more than \$2,000 shall be available upon demand for special biological equipment; not more than \$10,000 in any one year for operation, maintenance, and improvement of the cyclotron; and not more than \$8,000 in any one year for salaries and wages of the technical staff involved in the basic biological research program.

Future Implications: No commitments, but the officers will wish to review the situation before the termination of the appropriation. Report at the end of the third year.

-----