The purpose of these grants is to encourage and assist in maintaining researches directed primarily to the solution of fundamental biological problems, and to the development of apparatus essential in such studies. In making short-term grants, as for 1938–39, special consideration will be given to work in progress or to programs definitely formulated. Next in importance to the scientific promise of the project is the availability of facilities and of cooperation in case the work involves other fields, such as special chemical or physical techniques. The committee endeavors to keep in touch with interested industrial corporations manufacturing apparatus or materials used in such biological studies, and in the past the cooperation of these agencies has been valuable both for the loan of certain types of apparatus and for assistance in the construction of special facilities.

Applications for grants should be made promptly, and these should include an adequate statement of the status of the problem or project, the extent of the support received or promised, or the time offered, by the university or institution with which the applicant is associated and the character of the apparatus available or obtainable for the work.

The conditions under which grants of money or apparatus may be made are essentially the same as those made by the Committee on Grants-in-Aid of the National Research Council, and in brief are as follows:

1. Grants will cover such expenses as apparatus, materials and supplies, technical assistance, and, to a limited extent, field expenses.

2. Ordinarily, grants will not be made for any part of the personal salary of the grantee, for expenses of publication, for the purchase of books or for travel in attendance upon scientific meetings.

3. In general, preference will be given to the support of investigations, (a) requiring a moderate allotment, (b) from which definite results may be expected with the aid of the grant, (c) which are supported in part by the institution with which the applicant is associated, and (d) for which it is reasonably certain that the facilities are available or procurable, or in which cooperation is arranged between the biological and physical interests.

It is expected that allotments for 1938–39 will be made in late August. Those planning to apply for grants should immediately request application forms from the Division of Biology and Agriculture, National Research Council, 2101 Constitution Ave., Washington, D. C. The applications, together with any supporting documents, should be sent promptly, preferably by July 15, 1938, to the Division of Biology and Agriculture.

B. M. DUGGAR,
Chairman, Committee on Radiation

NEWTON'S THIRD LAW

THE recent discussions of "Osgood's Mechanics," by J. W. Campbell and H. M. Dadourian (SCIENCE, November 12, 1937, and April 29, 1938) prompts me to add a comment. In my experience students usually fail to distinguish between the equality of opposite forces in equilibrium and the equality of forces expressed by Newton's third law. It is therefore disconcerting to find this confusion on page 1 of Osgood's excellent text. He says: "Thus if a barrel of flour is suspended by a rope (and is at rest), the attraction of gravity—the pull of the earth—will be represented by a vector pointing downward and of length W, the weight of the barrel. On the other hand, the force which the rope exerts on the barrel will be represented by an equal and opposite vector, pointing upward. For, action and reaction are equal and opposite."

But the weight of the barrel and the force which the rope exerts on the barrel are not related as action and reaction. The reaction to the weight is not the force exerted by the rope, but the pull of the barrel on the earth. Forces in equilibrium act on the same body, whereas action and reaction act on different bodies. A principle of equilibrium is therefore not derivable from the third law. I remark that "An Advanced Course in General College Physics" by Bayley and Bidwell contains a precise statement of the distinction.

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SOCIETIES AND MEETINGS

SOUTHWESTERN DIVISION OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE Southwestern Division of the American Association for the Advancement of Science held its eighteenth annual meeting at Albuquerque, New Mexico, from April 25 to 28, 1938. The University of New Mexico was host institution.

The meetings were very well attended in all sections. The following organizations met in conjunction with the division: The Mathematical Association of America, Southwestern Section; Society of American Foresters, Southwestern Section; American Association of University Professors, Rocky Mountain Region; and New Mexico Section, American Society of Civil Engineers.