The Maine Station in its 35 years of existence has through its discoveries added many millions to the wealth of the state. It is the only research agency the state has for discovering the laws underlying successful agriculture. Research is slow painstaking work. The research worker must be kept from harrowing concern. For it is only by concentration on his project that success can be had. This action of the trustees has fundamentally disturbed the confidence of the research man. He argues if the director after a quarter of century of faithful work is dismissed without adequate reason, where does he stand, what hope has he of being able to complete a study that must extend over long periods of time? At no time in the history of the station does it so need the steadying hands of friends of agriculture. The last request of the removed director is to the friends of agriculture, and he is happy and proud to know they are for the most part his personal friends as well, to come to the support of the station. It has been receiving $5,000 a year from the state for its support. To tide it over until increased federal appropriations which are being asked for in a nation-wide movement are available, this amount must be increased to $25,000 a year. Otherwise it will not be possible for any one to hold the present very efficient organization together. Help will come from the outside eventually but for this help to be efficient the agriculture of the state must see to it that the legislature makes provision for its immediate support. CHAS. D. WOODS

QUOTATIONS

SCIENCE AND THE NATION

MOST of us receive daily appeals for war memorials of various kinds. Would not the best, and, in the end, the cheapest, war memorial be a growing and efficient body of brain-workers, able and willing to solve the problems which the war has left in its train, and to help the nation in its hour of need? For leaders both in peace and war we must find and train men who will be competent to use the national resources in the most effective manner. Scientific workers are naturally marked out by their progressive instincts and severe training to serve not merely in an advisory capacity in the councils of the nation, but also as executive officers. Moseley and others of his type will not have died in vain if the Cenotaph reminds us that men of science must take an active part in the affairs of state, in guiding the development and thought of the nation, and in seeing that the bitter lessons learnt during the last six years are not forgotten.

This end will not be attained by service on committees, whether for chemical warfare or any other subject. If the War Office seeks to be scientific it should establish within itself, as the Admiralty has done, a research department with distinguished men of science as permanent members of the staff to suggest and supervise work on methods of modern warfare. It would be the business of such officers to make use of science for purposes of national security, and workers in university or other laboratories could please themselves whether they cooperated or not in particular researches or experiments. We can understand the objections offered by Professor Soddy and others against men of science associating themselves as a body with problems of this type, but until human nature reaches a higher ethical plane than it occupies at present we must have a War Office, and an essential part of it should be an able scientific staff, the members of which would be responsible for making us strong enough to meet any crises which the future might bring. No committee of sixty or more associate members can do this, and none would be necessary if the War Office ranked a scientific service with the General Staff, as it should do, instead of inviting scientific workers to devote their time and knowledge to "offensive and defensive aspects of chemical warfare" for little more than out-of-pocket expenses.

We claim for science a much more responsible position, and a far higher appreciation of its worth, than our war leaders offer to it even now; and we do so because we remember that

thousands of young lives were lost through its neglect. When we bow our heads before the Cenotaph we think of the highly trained men of science who were killed at Gallipoli or drowned in the mud of Flanders while Ministers turned for advice to alchemists and circle-squarers, or confused great chemists with dispensers of drugs, and we wonder whether even now anyone in power realizes what civilization has lost through the sacrifice of creators of knowledge. While we mourn their loss, let us work and pray for the scientific enlightenment of the leaders into whose hands the destinies of the nation are entrusted, so that we may be assured of strong and effective guidance whatever is before us.—*Nature.*

SCIENTIFIC BOOKS

The Geology of South Australia. By Walter Howchin, Lecturer in Geology and Paleontology in the University of Adelaide. Published by the Education Department, Adelaide, 1918. Pp. xvi + 543.

Division I. of this book is a general review of geologic processes and principles, with illustrations drawn chiefly from the geology of Australia. Incidentally, the illustrations bring out many facts concerning Australian geology, some of which are not readily available to the general reader. For example, in the discussion of deformation, it is stated that there are two belts of "settlement" (subsidence), one meridional, giving rise to the great rift valley, the ends of which make the present great gulfs, the other along the continental shelf at the south, running northwest and southeast, its location being about where the shallow sea floor slopes down to the depths. Settlement still is in progress in both these zones, and the earthquakes of Australia, of which two have been recorded in recent times, one in 1897, and one in 1902, are connected with the sinking.

Division II. of the volume deals with the historical geology of South Australia, but, fortunately, comprehensive notes are appended concerning the geology of other parts of the continent, so that this part of the book is a summary of Australian geology, with chief emphasis on South Australia. Brief correlation notes tie up the geology of the continent with that of England. The sections dealing with the Cambrian and the Permo-Carboniferous are perhaps of greatest interest because these systems have large and instructive representation in the continent. The Cretaceous also is represented in a large way.

The volume has excellent illustrations, both photographic and diagrammatic. The illustrations of Cambrian fossiliferous limestone, p. 377, are examples of the former, and the section of Mt. Remarkable, p. 279, of the latter.

The hope may be expressed that when a second edition of the book shall appear, a little more stress may be laid on the physical events in the history of the continent, as for example, the character, extent and dates of the principal deformations. If knowledge permits their preparation, paleographic maps would be most welcome. The volume is a very useful one, and adds much to our knowledge of the geology of the continent.

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SPECIAL ARTICLES

THE COMPRESSION OF A SOUND WAVE

Lord Rayleigh and more recently Professor A. G. Webster and others have given considerable attention to this problem. The following experiment, which is, I think, capable of exact development, is a further contribution.

1. *Apparatus.*—Many years ago[1] I showed that displacement interferometry lent itself favorably to the study of a diabatic expansion and this is particularly the case when the achromatic fringes are used. It is therefore suggested that the endeavor to look with the interferometer through the nodes of an organ pipe would not be unsuccessful.

Open pipes *P,* adapted for the purpose in question, are shown in Figs 2, 3. In Fig. 2, cylindrical adjutages *pp′,* of somewhat smaller diameter than the pipe (open within, but closed by glass plates *gg* on the outside) are

[1] Carnegie Pub. 149, Ch. XI., 1912.