National Physical Laboratory, has continued the series of tests for the committee on hardness tests, with special reference to the effects of variations of load and speed on rate of wear. A series of wear rings of varying widths has been made from material supplied by Sir Robert Hadfield, who has also undertaken their hardening. Another holder for these rings has been constructed of a form which will considerably facilitate regrinding. A series of specimens has been prepared and the tests are now in hand. The work was delayed for some months owing to some of the apparatus being required for war work. In addition to the grant of £100 made by the institution, a sum of £100 has been received from the Department of Scientific and Industrial Research, Sir Robert Hadfield has placed in the hands of the institution a sum of £200 to be awarded as a prize or prizes for the description of new and accurate methods of determining the hardness of metals, especially those of a high degree of hardness, but the council regret that as yet few such descriptions have been received.

The work of the committee on wire ropes, to which a grant of £450 was made by the council, has been much delayed by war work and the prolonged illness of the chairman. Nevertheless a design for a testing machine has been approved in principle for giving a somewhat wider range of tests than was originally contemplated, in the direction of providing for more bends both simple and reverse, and also for bends in planes at right angles. The choice of a site for its erection has been deferred.

In connection with the offer of a gift of £500 from Mr. Richard Williamson in aid of engineering research, a number of suggestions for subjects were received. The one which the council selected was on the best form and material for pistons and piston-rings, especially for internal combustion engines, and they are awaiting the approval of the Department of Scientific Research through which Mr. Williamson's offer was transmitted.

A PREHISTORIC PUEBLO INDIAN RUIN

THE American Museum of Natural History, in the summer of 1916, entered upon the largest single piece of scientific excavation ever undertaken in the United States. This was the systematic excavation and reparation of one of the finest and best preserved examples of prehistoric Pueblo architecture in the Southwest. The ruin is located in the Animas Valley in northwestern New Mexico, a few miles below the Colorado boundary and directly across the river from the town of Aztec, and is popularly, though inaccurately, called the "Aztec Ruin." It is the property of Mr. H. D. Abrams, of Aztec, who has given the Museum a concession to clear out and investigate the entire ruin. The funds for carrying on the work have been contributed by Messrs. Archer M. Huntington and J. P. Morgan.

The "Aztec Ruin" was once a typical pueblo, or great fortified house and village, comparable in the number of people sheltered to the modern American apartment house, but differing from it in that the principle of the pueblo was close communal cooperation. The buildings were so joined as to enclose three sides of a rectangular court whose fourth side was protected by a low, outcovering wall. Only one entrance led through the outer wall into the pueblo, which was, therefore easily defended. The three buildings, rising sheer from the ground on the outside, with very small windows, rose within the court by receding steps, each a story high. Interior stairways were not in use, access being gained to upper levels by movable ladders. As a military contrivance, this plan could hardly have been improved upon, since an enemy would be forced to make not one, but a series of attacks, to get possession of the building.

Although the work of investigation has as yet been only partially completed, the features of the ruin itself, and the surprising finds which have been made within the crumbling walls, have proved of sufficient importance to surpass the most sanguine expectations of the investigators. Necklaces of shell and turquoise, agate knives, pottery vessels of varied form and ornamentation, cotton cloth and woven sandals are among the gems of prehistoric Pueblo art which have recently been

unpacked in the laboratories of the American Museum. The work has been supervised by Assistant Curator N. C. Nelson, under the immediate direction of Mr. Earl H. Morris, also of the American Museum.

The seventy thousand specimens already recovered from the Aztec Ruin constituted one of the most complete collections representative of a prehistoric North American culture which have thus far been obtained. Trained preparators are working with the material, and in the near future a representative selection will be placed on exhibit in the Museum's Southwest Hall.

One of the most important phases of the explorations at Aztec is the repair and preservation of the ruin. As fast as the walls are uncovered, masons replace the stones which have disintegrated, and strengthen the portions of the structure which threatened to collapse. The intention is to make of the ruin a permanent monument to the aborigines of the Southwest rivalling in importance the Mesa Verde National Park.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY AND THE McKAY BEQUEST

President Richard C. Maclaurin in his annual report to the corporation of the Massachusetts Institute of Technology in referring to the recent decree of the Supreme Court with reference to the agreement between the Institute and Harvard University says that this agreement marked an epoch in the history of educational progress in this country. The end sought was to build up an educational machine more useful to the community and to the nation than anything that could be maintained by either the institute or the university, acting independently. Dr. Maclaurin writes:

> The plan adopted by the two corporations nearly three years ago has in the meanwhile been put to the actual test of experience and has met that test well. Most, if not all, of the difficulties that were anticipated by some have either not presented themselves at all or have been easily overcome. The educational power both of the institute and the university has been greatly strengthened and the cause of science that is applicable to the service of man greatly promoted by this combination of forces. . . . Unfortunately, however, the funds that the university has at its disposal for the promotion of the great science of engineering are almost wholly dependent on the income from the Gordon McKay Endowment, and the Supreme Court has decreed that this income can not be applied in the manner indicated by the agreement. . . .
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> It remains to be seen whether another plan can be drawn up that is equally or nearly equally, workable and effective as an educational instrument and that accords with the view of the court regarding Mr. McKay's intentions. We should be false to our educational trust if we did not give this matter due consideration and earnestly seek a satisfactory way out. If intimate cooperation between these two institutions was demanded by the exigencies of the situation before the war, it is still more urgently demanded now. With the serious problems that this nation must face during the war and the equally serious problems that must be dealt with in the period of reconstruction thereafter, needless duplication of effort and needless dissipation of energy would be in a high degree reprehensible. . . .
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> As far as the institute is concerned in the near future the abandonment of this agreement would be much less serious in its financial aspects than seems generally to be supposed. This arises from the fact that the actual amount of income available from the Gordon McKay Endowment has been greatly exaggerated in certain quarters. According to the testimony before the court, all that the university has available at present is the income from less than two and one quarter millions. Under the agreement Harvard does not turn any of this income over to the institute, but appropriates a portion of it for the maintenance of courses leading to Harvard degrees, these courses being conducted at the institute. The amount thus appropriated since the agreement went into operation has been $100,000 annually, the major part of this having been employed in paying the salaries of the university's professors and instructors. The whole amount is less than one tenth of the annual expenditure of the institute. It must not be supposed, therefore, that the institute will be crippled financially if the agreement with the university is abandoned.

THE GENERAL MEETING OF THE AMERICAN PHILOSOPHICAL SOCIETY

The American Philosophical Society will hold its annual general meeting at Philadelphia on April 18, 19 and 20. Dr. William B.