complete for the northern stars. Professor Kapteyn has thus determined the magnitude of about seventy thousand stars, which are now in print in *Harvard Annals,* Vol. 85.

Professor Pickering has also shown great interest in developing useful work among amateur astronomers. It is through him that the chairman of the visiting committee has been able to do some work on the asteroids. Through lack of expert direction a large part of the efforts of amateurs has proved of little value. An exception to this rule has been the Association of Variable Star Observers, which was formed five years ago and has received much encouragement and help from the director.

During the last year this association of enthusiastic amateurs, consisting of thirty observers, has made eleven thousand two hundred and fifty-two valuable observations of two hundred and ninety variable stars of long period. For this work the observatory has furnished suitable charts and determined the magnitudes of nearly five thousand stars needed for reference, so that all are now measured on the same scale. At a meeting of the Association of Variable Star Observers held at the observatory in November, 1916, nineteen skilled observers made estimates of the magnitude of the same object with the twelve-inch telescope which showed an average difference of less than one-tenth of a magnitude—an experiment altogether unprecedented.

As these observers generally have access to only small telescopes and are therefore unable to measure variables when they are faint, Professor Wilson and Professor Mitchel have shown their spirit of cooperation by kindly agreeing to continue the work with their sixteen-inch and twenty-six-inch telescopes when the stars are too faint to be measured by smaller instruments.

Also it should be mentioned that the observatory is cooperating with the other observatories of the world by furnishing magnitudes and classes of spectra in advance of their regular publication in the *Harvard Annals,* which has been spoken of in previous reports.

These are some of the facts which show the large way in which the observatory of Harvard is interpreting its work, and give some idea of how much Professor Pickering has done to encourage friendly scientific cooperation both here and abroad.

The fruits of much of this work will mature only in the future.

Some of this cooperation the war has temporarily broken but we look to the speedy re-establishment of it when this world calamity be overpast, and it will help to bind up the wounds and soften the animosities which now divide the nations.

The publishing of astronomical discoveries has not entirely ceased even now, and when peace is at last declared the common interest in the heavens will assert itself and bind together those whom the war has separated and estranged. Thus the cooperative study of astronomy will help to give us a new heaven through the interpretation of a nobler science and, through the good will which cooperation aways brings, a new earth, in which dwelleth righteousness.

JOEL H. METCALF, *Chairman,*
GEORGE R. AGASSIZ,
GEORGE I. ALDEN,
INGERSOLL BOWDITCH,
CHARLES R. CROSS,
SAMUEL W. MCCALL,
HERBERT PARKER,
FREDERICK SLOCUM,
ELIHU THOMSON

SCIENTIFIC EVENTS

THE MUSEUM OF THE UNIVERSITY OF PENNSYLVANIA

AT THE close of its free public lecture season the officials of the University Museum call attention to the recent progress of the institution and to some facts in connection with its activities.

Although only in its twenty-third year the University Museum is already recognized everywhere as one of the most important institutions of its kind in the world. Some of its collections are the finest in existence, its expeditions have gone to all parts of the globe,

bringing back rare specimens, while from an educational point of view it has done more than any other museum in revealing the early history of Mesopotamia and throwing light on early culture.

In spite of its youth the real estate, buildings and exhibits are given the very conservative valuation of more than four million dollars, or nearly the value of the total equipment of the entire university as carried on its books when founded.

Its collections of Chinese art are the largest and most representative to be found anywhere in the world, including China.

Its Babylonian collections are the most important in the world and scholars have used them to reveal millenniums of previously unknown history. The museum has published many of its translations, which have made a great impression upon the entire world.

Its Egyptian collections are very large and representative, and when those now held in Egypt until the war ends arrive, the exhibit will be one of the most notable in this country.

Its collections of Eskimo material are the most complete to be found anywhere, and it has a great collection of North American Indian specimens.

Its South American collections, especially those gathered by Dr. Farabee, are not only unrivaled, but the archeological exhibits are the greatest and are almost unique.

Its collections of Tibetan, Indian, Persian and Syrian art are large and valuable.

It has vast stores of valuable art and ethnological material stored away which there is no room now to place on exhibition.

How greatly the museum is appreciated outside this city is shown by the fact that within thirty days $75,000 has been given to the institution by men who have not even visited it, but who know of its value. Of this sum $30,000 has just been given by a New York man, who has watched its career with interest and approval, and has no connection whatever with the university, but desires to increase the museum's educational influences, and, approximately, $35,000 by another benefactor, also a non-resident of the state of Pennsylvania.

The museum is preparing to enlarge its sphere of public usefulness and will shortly issue an announcement of its purposes. It has done much by giving free public lectures Saturday afternoons by the best specialists, has given Wednesday afternoon lectures especially for school children and now desires in the most practical way to further cooperate with all art schools, art clubs, school art leagues and high-school art classes not only in this city but in the entire surrounding country. Already much work has been done by assisting manufacturers who have sought collections in the museum for securing new designs or new ideas, and it proposes to extend this work so far as is possible so as to bring the practical results of the exhibits in touch with the commercial expansion of the city to a greater extent than ever.

RECONSTRUCTION COMMISSIONS OF THE BRITISH GOVERNMENT

The British ministry of reconstruction has just published a complete list of the various commissions and committees that have been set up, both within that ministry and within other ministries and departments of the British government, to deal with questions which will arise at the close of the war.

These commissions and committees, which have been appointed at different times since the war began, now number 87 and fall into 15 groups.

Among the committees on scientific and industrial research are the following:

Fuel Research Board.—To investigate the nature, preparation and utilization of fuel of all kinds, both in the laboratory and, where necessary, on an industrial scale.

Cold Storage Research Board.—Appointed to organize and control research into problems of the preservation of food products by cold storage and otherwise.

Standing Committees on Engineering, Metallurgy, Mining and Glass and Optical Instruments.—To advise the council on researches relating to the lines of activity named and on such matters as may be referred to the committee by the advisory council.

Joint Standing Committee on Illuminating Engineering.—To survey the field for research on il-