

Fitzwilliam Museum, Cambridge, that a building licence was granted for the Graham Robertson Room. This extension will provide a much-needed exhibition gallery and students' room, with storage accommodation, for water-colours and drawings. The work is due to be completed by October 1954. The Friends of the Museum have again been generous in their support, and purchases to the extent of more than £1,200 were made during the year. These included a porcelain dish of the Ming dynasty (Yung Period) decorated in blue, and a porcelain stem-cup decorated in red and green enamels and dated sixteenth century (Ming Dynasty).

#### Records of the Dominion Museum, Wellington, New Zealand

THE "Records" of the Dominion Museum, Wellington, New Zealand (Vol. 2, Part 1; 1953), includes papers on ichthyological notes, with special reference to sexual dimorphism in some New Zealand fishes; the ecology of the vegetation of sand dunes at Piba; and a molluscan fauna from the Chatham Rise. Part 2 of the same volume consists of papers on Acantocephoba from Auckland and Campbell Islands, parasitic nematodes and trematodes from Campbell and Auckland Islands. Vol. 1 of this "Record" was published in 1942-44. Since that date, various publications have been issued; but it is now stated that, commencing with the present parts, the series of "Records" will continue.

#### Cross-Sections of Paints

AN important article in the July issue of the *Museums Journal* by Joyce Plesters, of the National Gallery, London, details some experimental work on the preparation and study of layers of paint on pictures. For a proper microscopical study of the layer structure the paint fragment must be mounted and its surface prepared by sectioning. The embedding medium used is 'Marco Resin S.B. 26 C', and full details of the process are given in the paper. The information about the physical structure of paintings that can be gleaned from a study of paint cross-sections is varied and a few specific and illustrated examples are recorded. Such matters as over-painting are quickly detected, and a clear distinction can be drawn between the original and subsequent additions. Facts of art-historical interest sometimes emerge from a study of paint cross-sections, and information regarding the technical methods used by the artists can generally be deduced. A collection of paint cross-sections is being made and with the corresponding chemical analyses form an interesting record of artists' techniques and palettes, and may indeed prove of definite diagnostic value in providing additional evidence for attributions.

#### Heat Transfer by Radiation

THE Department of Scientific and Industrial Research and Fire Office's Committee has produced Fire Research Special Report No. 2, "Heat Transfer by Radiation", by J. H. McGuire (pp. 29. London: H.M.S.O., 1953; 1s. 6d.), which deals with the configuration factor, and heat transfer between extended surfaces and between reflecting surfaces. The configuration factor, or geometrical factor, takes account of the geometrical relationship between a radiator of uniform temperature and emissivity, and a receiving element, and may be defined as the ratio of the intensity of radiation at the receiving element to the intensity near to the radiator. In the pamphlet the

configuration factor integral, the additive property of configuration factors and the configuration cosine law are first derived, and then the geometrical and optical methods of determination of the configuration factor are briefly described. The various mathematical expressions for the configuration factors of the simple well-known surfaces—for example, plane, sphere, circular disk, cylinder, etc.—are listed and the use of the configuration factor tables relating to the various expressions is illustrated by the worked solution of a particular problem concerning a cylindrical flue pipe. The remainder of the report is devoted to radiative heat transfer when multiple reflexions can take place. Expressions are derived relating to infinite plane surfaces, two finite non-concave surfaces, concentric spheres and concentric cylindrical surfaces. The report is a useful collection of available information expressed in a form which facilitates numerical calculation, and with the increasing use of radiative heat transfer in industry and with the application of its geometrical principles to the illumination of buildings it should prove valuable to engineers working in these fields.

#### Solar Furnaces for High-Temperature Research

A BRIEF but interesting account of recent progress in the design of solar furnaces for high-temperature research and development work, written by one who is actively engaged in this field of investigation, is given by W. M. Conn in the January number of the *Journal of the Franklin Institute* (257, 1; 1954). The principal advantages and disadvantages of solar furnaces in comparison with other means of obtaining high temperatures are discussed, and the various fields of study in which solar furnaces have been utilized or are expected to be of particular value are briefly outlined. A useful table is included in which data are given concerning recently erected solar furnaces at Jena, Germany, by the Zeiss Company; at Meudon and Mont Louis, France, by F. Trombe and co-workers; and at Kansas City, United States, by Mr. Conn and co-workers. The first large solar furnace units were used for qualitative work only; but recently solar furnaces for quantitative work have been developed, and various accessory equipment for heating and cooling a specimen according to a predetermined schedule, for maintaining it at a desired temperature and for air quenching is described. The development of solar furnaces for semi-industrial use is also discussed, and in one type mentioned the usual one-piece mirror is replaced by a collector consisting of a large number of small curved mirrors.

#### Work Study

THE Association of British Chemical Manufacturers organized a two-day conference on works study at Buxton during October 9-10 for senior executives engaged in the chemical industry. The conference was arranged in order to implement one of the recommendations of the Heavy Chemicals Productivity Team, which visited the United States in the spring of 1952. The proceedings of the conference have now been brought together and cover all the addresses given, together with a summary of the main points which emerged at the meetings of the thirteen discussion groups. Among the addresses were descriptions of the techniques of method study and work measurement, the application of work study to financial incentive schemes, the effect of work study on labour relations and the introduction of work study into a factory. All these were con-