Britain, with a full-time chairman and secretary, should be constituted by the Central Government in India to advise on the distribution of funds available. Such a body would be in a position to give authoritative advice and guidance to the universities, without interfering with their economy, not only in regard to general expansion, but also as to the special lines of research they can most usefully undertake. There is a similar need for collaboration between the universities and various research institutions in the country, and particulars of some of the institutes which function as common federal institutions for advanced technical training and research are included in the paper. Some reference to the corporate life in the universities and the importance of continued contact between British and Indian universities both in regard to teaching, research and students is also included.

## Tercentenary of the Calculating Machine

THE first calculating machine was invented in 1642 by Blaise Pascal. Had it not been for the War, the tercentenary of this event, which has had such a profound influence on applied mathematics and physics, would have been appropriately celebrated in Paris. In order that the date may not pass unnoticed, a small committee representing the Fighting French and British men of science, inventors and users has arranged a memorial luncheon to be held on October 19, at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.30 for 12.45 p.m. Prof. S. Chapman, president of the Royal Astronomical Society, will propose the toast of "Pascal—the inventor of the first calculating machine". The reply will be by Prof. R. Cassin, Commissaire National à la Justice et l'Instruction Publique. Other members of the Fighting French and French men of science in Great Britain will be present. Invitations are being sent to those who have been conspicuously associated with the development of calculating mechanisms, and to distinguished users of calculating machines, both scientific and industrial; tickets can be obtained from Miss M. E. Purves, 23 Bedford Square, London, W.C.1.

The luncheon will be followed by a small exhibition from 3 until 6 p.m. of calculating machines, with particular emphasis on models to show the actual mechanical working. A replica of the first machine made by Pascal will be exhibited and also a replica of the first calculating machine made in England by Samuel Morland in 1666. Demonstrators, in no way connected with the selling of machines, will explain the machines and models to visitors. Two 15-minute lectures have also been arranged, one at 3.30 by Dr. L. J. Comrie on "Mathematical Gymnastics with Calculating Machines", and the other at 4.30 by Mr. R. S. Nilsson on "A Description of Calculating Machine Mechanisms"

## The British Astronomical Association

ON the invitation of the president and council of the Royal Astronomical Society, the British Astronomical Association is to be accommodated in future in the rooms of the former at Burlington House, London. Negotiations have been proceeding for some months and the final arrangements were completed in time for the British Astronomical Association to hold its first meeting in the new premises on September 30. A large part of the proceedings was devoted to a survey of the history of the Association since it was founded in 1890, special mention being made of its founder, Mr. Edward Walter Maunder. A number of members spoke about the progress of the Association during the fifty-two years of its existence and about the influence of many of its past members in shaping its policy and assisting with its remarkable development. It is worth noticing that the present international crisis has not affected its membership adversely—an indication of the interest which the amateur possesses in various astronomical branches. The new premises provide more adequate accommodation for the library and in other ways supply great facilities for the members, to whom the change has given considerable satisfaction.

## Conference of Scientific Workers at Manchester

ON September 27, the North-West Area Committee of the Association of Scientific Workers arranged an all-day conference in Manchester on "Science and Total War". Opening the morning session, Prof. H. Levy asked the conference to consider the scientific effort of the country against the background of the slavery to which, literally, Hitler is subjecting the scientific workers and peoples of Europe. Total war demands total production at home, total production in the scientific sense. One of the biggest factors in ensuring total production, he said, are the production committees at which management and workers may overcome their traditional antagonism. Research must be centrally and co-operatively organized. The armed forces should select their officers scientifically and should ensure that there are sufficient technicians in the field to deal with problems as they arise.

Mrs. Barbara Ruheman described the contribution of science to the war-effort of the U.S.S.R., stressing the central position held by the Soviet Academy of Sciences in all Russian planning schemes. There is an intimate collaboration between the designer of a new fighter, for example, and the pilots who actually fly it. At the afternoon session difficulties arising in the working of production committees were discussed by speakers representing shop-stewards, engineers and chemists. These contacts were valuable in breaking down misunderstandings between workers and technicians. Resolutions were passed supporting the establishment of a whole-time central scientific and technical planning board, urging the strengthening of the Ministry of Supply's Synthetic Rubber Committee by the inclusion of technical experts, and the pooling of information, especially between firms engaged on medicinal research and production.

## Biology and Control of the Bed-bug

THE Medical Research Council has recently issued in its Special Report series, No. 245, a "Report of the Committee on Bed-bug Infestation 1935–1940" (H.M. Stationery Office, 1942. 1*s*. net). It is in the form of a 64-page brochure which comprises six sections on the subject, concerned with the varied aspects of the problem, each being contributed by different specialists. In the section on new data bearing upon the ecology of the bed-bug, it is gathered that, provided a source of blood is available, temperature is the most important environmental factor. In unheated rooms the winter mortality of the bug population may be as high as 80 per cent, whereas in warmed rooms the population tends to increase enormously

from year to year. The threshold of activity of the insect may be so low as 7–10° C., while a temperature of 13–14° C. is most favourable to a long life of the insect in the absence of food: both above and below this temperature life is definitely shorter at comparable humidities. For long life a high humidity is essential. At 45° C. (113° F.) the eggs succumb in one hour, and the adults in the same time at a temperature one degree lower.

As regards insecticidal methods of eradication, sulphur dioxide has proved to be a poor ovicide and not very toxic to the immature bed-bugs. An account is given of the circumstances leading to the abandonment of orthodichlorbenzene as a fumigant against the insect. Heavy naphtha is shown to be a useful contact insecticide, while its vapour action is particularly effective. The practical uses of hydrogen cyanide and heavy naphtha as fumigants have been investigated and conditions governing their application specified. Details are also given of the experimental methods used to test the effects of the insecticides employed on man. Of those investigated, orthodichlorbenzene is shown to be dangerous and heavy naphtha relatively safe. The concluding section is concerned with building design in relation to bed-bug infestation. It is stressed that new buildings should be so constructed as to provide the minimum harbourage for the insect and allow of its cheap and easy eradication in the event of infestation occurring.

## Determining Colour in Telephone Cable

A METHOD is described by C. T. Wyman (*Bell Lab. Rec.*, **20**, No. 11, July 1942) of correctly determining the colour of conductor insulation papers, which, moreover, permits the use of a range of colours otherwise unobtainable. The system uses a scheme of colour notation developed in recent years by A. H. Munsell, in which each colour is specified by stating certain values for three parameters called 'hue', 'value' and 'chroma'.

'Hue' corresponds most nearly to what is normally called colour, five basic hues being used—red, yellow, green, blue and purple. Five intermediate colours—yellow-red, green-yellow, blue-green, purple-blue and red-purple—are also designated, and each of these ten hues is divided decimally to give ten sub-hues. Any hue is specified by a letter and a number from one to ten; thus $2R$ represents a red approaching the red-purple. 'Value' represents that characteristic most nearly described as 'lightness' or 'darkness', and is specified by a number from one to ten following the letter or letters designating 'hue'. 'Chroma' represents the degree of colour of any one hue, and is also represented by a number immediately following the 'value' number, but separated from it by an oblique line. A zero chroma would be a complete absence of colour, and would thus be a light or dark grey, depending on the value. A simple system of matching is thus available. It is not necessary to make samples of all the colours, however, because any colour may be obtained by mixing certain other colours.

In the method described several differently coloured disks are interleaved and the assembly is caused to rotate. The individual colours disappear and are replaced by a single colour corresponding to the particular combination. The Munsell Color Co. makes up a series of disks using light-fast dyes. These disks have a central hole to fit on the spindle of a motor, and a radial slit from rim to centre. A group of colour disks is selected which, when properly proportioned, will give the required colour, the disks being interleaved through the medium of the radial slots. The method has recently been adopted to secure colour standards for cable insulation, using a card carrying a peripheral scale mounted on the spindle behind the disks to provide a ready means of determining the percentage of each colour that is exposed.

## Thickness of Aluminium Oxide Coatings

ALUMINIUM surfaces in telephone apparatus are sometimes protected by an electrochemically deposited oxide coating. It is important to control the thickness of these deposits and several methods have been tried. A majority of them, such as scratching the surface, stripping the deposit to weigh it, and measuring the thickness of a cross-sectional cut under the microscope involve destruction of the sample. A quick and reliable method, which is not subject to this limitation, is described in the *Bell Laboratory Record* of July 1942. It measures the voltage required to break down the oxide coating and punctures the specimen with so small a hole that it is not appreciably marred. A chromium-plated sphere about $\frac{1}{8}$ in. diameter is pressed against a thin plate of oxide-coated aluminium until the force, as indicated by a calibrated spring, is 1–2 kgm. Increasing voltages up to 1,500 are then applied, and that at which breakdown occurs is noted, the current being limited by resistors. This method has been used in the Bell Laboratories to study the relation between film thickness and the time to make the deposits electrochemically. The thickness obtained by an average of several readings is generally within ten per cent of the value found by direct measurement with a microscope.

## Alcoholism and Crime

IN a recent paper (*Quart. J. Studies on Alcohol*, **2**, 686; 1942) Dr. Ralph S. Banay, chief psychiatrist to Sing Sing Prison, New York, records his experience of this subject based on detailed examinations, laboratory studies, social investigations and years of follow-up in confinement or supervision on parole. Statistical data showed that the principal difference between the alcoholic criminal and the non-alcoholic criminal was the high incidence of assault among the former, while in the latter crimes against property took precedence. This seemed to suggest that the primarily intemperate individual was drawn into crime not only for the need of money but also by the increased irritability, irascibility and pugnacity of the protracted alcoholic state. In conclusion, Dr. Banay deplores the fact that though a large number of all types of alcoholic offenders are passing through many corrective institutions throughout the United States, little is done for the study, understanding, prevention and treatment of them.

## Dr. Wilhelm Camerer

DR. JOHANNES FRIEDRICH WILHELM CAMERER, an eminent physiologist and pædiatrician, was born at Stuttgart, the son of a well-known medical man, on October 17, 1842. After studying medicine at Tübingen and Vienna, he qualified in 1866 and for some years was engaged in private practice and public health work. Ill-health, however, compelled him to