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