Research, National Research Council, Ottawa. Other members of the Committee are: H. J. Butterill (International Nickel Co.), N. Cohen (National Research Council), R. Judge (Department of National Defence, representing the Defence Research Board), Frank D. Forward (University of British Columbia), H. P. Godard (Aluminium Laboratories, Ltd.), Lorne Sproule (Imperial Oil Ltd.), Dr. C. Y. Hopkins (National Research Council), E. T. Hurley (Canadian National Railways), H. D. Smith (Nova Scotia Research Foundation), and Frank Twining (Canadian Industries, Ltd.).

'Supermalloy': a New Magnetic Alloy

IRON-nickel alloys, containing 35–90 per cent nickel, have permeabilities very much greater than that of iron. These alloys, called 'permalloys', are especially useful commercially for transformers. The addition of one or more of the elements molybdenum, chromium and copper to permalloys has proved advantageous. 'Mumetal', which contains usually 5 per cent copper, 2 per cent chromium, 75 per cent nickel and 18 per cent iron, is perhaps the best known of the permalloys. It is used in transformers suitable for high frequencies and is notable not only for its high initial permeability (between 10,000 and 30,000) and its high electrical resistivity (60 microhm. cm.) but also for the very simple heat treatment required in its preparation. O. L. Boothby and R. M. Bozorth have described recent developments in these high-nickel alloys for use at low inductions (*J. Appl. Phys.*, **18**, 173; 1947; see also Bozorth, R. M., *Rev. Mod. Phys.*, **19**, 38; 1947). The new material 'Supermalloy' (su-perm'-al-loy), developed during the Second World War and already supplied in considerable quantities to the U.S. Navy, contains 5 per cent molybdenum and 79 per cent nickel, the remainder being mainly iron with a little manganese. The alloy is heat-treated, being maintained at 1,300° C. in pure dry hydrogen and then cooled from 600° C. to 300° C. at a critical rate. Whereas its electrical resistivity is about the same as for 'Mumetal', its initial and maximum permeabilities are many times larger, 50,000–150,000 for the initial, and 600,000–1,200,000 for the maximum, permeabilities. 'Supermalloy' can be produced in the form of very thin insulated tape, suitable for transformer cores, and it is claimed that the use of this new alloy in communication transformers permits a threefold increase in the range of frequencies transmitted, and a pulse duration three times that previously obtained.

Colchicine, its Chemical and Biological Properties

THE sessional inaugural lecture to the Chemical Society of University College, Dublin, was delivered on February 3 by Prof. J. W. Cook, regius professor of chemistry, University of Glasgow, who spoke on colchicine. Colchicum, a drug of great antiquity, is extracted from meadow saffron (*Colchicum autumnale*). It is present in all parts of the plant, especially in the seeds, which contain up to 0·75 per cent of the active principle. The poisonous nature of colchicum was known to Dioscorides; its toxic symptoms and its only therapeutic use, in the treatment of gout, are described in "The Herball", by John Gerarde, published in 1597. Colchicine, the active principle of colchicum, was isolated by Pelletier in 1820, but was not obtained pure and crystalline until 1915. Its composition and its functional groups were investigated by Zeisel, and the main features of its molecular structure were established by Windaus in 1924. Colchicine, $C_{22}H_{25}O_6N$, contains three rings, one of them a trimethoxylated benzene ring, an acetylamino group, and an inert carbonyl group, and it is the methyl ether of an enol. Recent studies have shown that revision of the Windaus structure is necessary, and the molecular formula of a degradation product, deaminocolchinol methyl ether, has been established beyond doubt by Barton, Cook and Loudon (1945). The final details of structure of colchicine itself still require to be settled. The molecule probably contains at least one seven-membered carbon ring. The remarkable effect of colchicine in arresting mitosis in nuclei at the metaphase was discovered by Lits, a pupil of Dustin; it is effective in a dilution of 1 in 10^8, and has important biological applications. Thus, it may be used as an index of the rate of growth of tissues, and of the activity of various classes of growth-stimulating hormones. An effect on plants, first studied by Havas, was shown by extensive investigations of Blakeslee to result in the production of polyploidy, leading to new and improved varieties of flowers, fruits and cereals.

Insect Pests of Flour

UNDER the title of "Insect Pests of Food: The Control of Insects in Flour Mills" (London: H.M. Stationery Office. 7*s.* 6*d.* net), the Ministry of Food has recently issued a useful 84-page practical bulletin by J. A. Freeman and E. E. Turtle. The authors are, respectively, chief entomologist and chief chemist of the Infestation Control Division of the Ministry. The bulletin deals with those insects and mites that affect the flour miller: it describes the measures that can be adopted in order to prevent infestation and how to control such insects should they manage to establish themselves. It is divided into three main sections, namely, methods of prevention and control; life-histories of insects and mites; and infestation in the mill. The losses which these creatures inflict on the industry may be assessed as damage to wheat; interference with productive processes; contamination and spoiling of finished products and loss of goodwill and trade reputation. The methods of control that are described are only those which have been examined by the Ministry and thoroughly proved in practice. It should not be inferred, however, that these methods are in any sense static. New work is continually going on, and, as examples, may be mentioned that which is being done in assessing the value of D.D.T. and of benzene hexachloride ('Gammexane') in this connexion. The bulletin is very well illustrated by numerous half-tone plates and text-figures.

The Bird Watcher

THE company of bird watchers grows larger with succeeding years, its ranks including a diversity of enthusiasts, from the scientific ornithologist to the schoolboy and schoolgirl recruit. It is to help these latter that the *Daily Mail* has issued a number of booklets on Nature subjects and so on, the latest of its School Aid series being "Bird Watching" by Mr. Stuart Smith (2*s.*). This consists of some thirty-four pages of excellent advice on how to study birds, with a number of admirable photographs by Mr. Eric Hosking, supplemented by equally admirable drawings by Mr. Edward Bradbury and eight colour pictures, the latter being reproductions of plates from Gould's "Birds of Great Britain". It is wonderful how fresh in spirit and treatment the Gould bird portraits remain, while for accuracy of feather detail