ABSTRACTS OF PAPERS PUBLISHED IN OTHER JOURNALS

PHARMACY

Transmission of Forces Through a Powder Mass During the Process of Pelleting. D. Train. (*Trans. Instn. Chem. Engrs.*, 1957, **35**, 258.) A manganin wire resistance gauge, protected by glyco-gelatin, has been developed to facilitate the measurement of pressure response within a mass of particulate matter under compaction. A number of such gauges have been used under specified conditions to obtain data so that the movement of isobars or pressure levels could be traced through a cylindrical mass of heavy magnesium carbonate subjected to an increasing pressure up to 2000 kg./sq. cm. from one end. Evidence for the development of a complex pressure pattern was confirmed by determining the relative density distributions in a number of compacts pressed to various levels within the pressure range, and a close relation was found to exist between the pressure developed and the apparent density produced at a point within a compact. A sequence of diagrams is presented for the development of the pressure pattern which is in accord with the work reported previously (*J. Pharm. Pharmacol.*, 1956, **8**, 745) and a tentative explanation is advanced for its development. When pressure is applied through the top punch, an uneven reaction develops in the powder just beneath because of opposing frictional forces at the die wall. This produces a high intensity wedge in the outer edges of the top of the powder mass because more material is impacted into this zone as the punch descends and this can be accommodated only by an increase of the local stresses. Resolution of such stresses indicates that the resultants within the particulate mass will be along an oblique line towards the lower centre of the pressing and coinciding with the ridge of relatively high intensity previously reported. By reason of symmetry the combination of this cone of resultant stresses produces a higher intensity region near the lower centre of the compact.

Further comment is made on the influence of shearing stresses on interparticulate bonding. D. T.

PHARMACOLOGY AND THERAPEUTICS

Analgesics, Strong, Some Ethyl-1-aralkyl-4-phenylpiperidine-4-carboxylates. B. Elpern, L. N. Gardner and L. Grumbach. (*J. Amer. chem. Soc.*, 1957, **79**, 1951.) A series of ethyl-1-aralkyl-4-phenylpiperidine-4-carboxylates have been prepared by treating various aralkyl halides with ethyl 4-phenylpiperidine-4-carboxylate, and by minor modifications of this procedure. Substituted *N*-phenethyl derivatives were of equal or greater potency than the *N*-methyl derivative, the most potent substance carrying the 4-aminophenethyl substituent. Replacement of phenethyl by pyridylethyl enhanced the potency, 4-pyridylethyl being more effective than 2-pyridylethyl. Maximum activity was seen with three methylene groups separating the aryl group from the nitrogen. A double bond in this position still further enhances activity, but a triple bond abolishes activity. J. B. S.

Glycyrrhetinic Acid, A Non-steroidal Anti-Inflammatory Agent in Dermatology. E. Colin-Jones and G. F. Somers. (*Med. Press*, 1957, **238**, 206.) This paper reviews the pharmacology of glycyrrhetinic acid and reports on its anti-inflammatory activity as evidenced by tests on experimental animals and an extensive clinical investigation in a variety of skin diseases. Glycyrrhetinic acid is a complex triterpene derived from glycyrrhizic acid, the sweet constituent

of liquorice. The authors have demonstrated the anti-inflammatory action of the biologically active isomers of glycyrrhetinic acid in established experimental methods in laboratory animals:—the cotton pellet method of Meier, Schuler and Desaulles, inhibition of tuberculin reaction in B.C.G. infected guinea pigs, the rat foot test and the granuloma pouch test. It is also reported that it heals experimentally induced inflammatory lesions on the skin of the rabbit and reduces induced inflammation in the rabbit eye. It was also demonstrated that a "commercially pure" glycyrrhetinic acid did not suppress the tuberculin reaction in B.C.G. infected guinea pigs, and the authors postulate that this may be due to method of extraction and purification. Clinically, the topical application of ointments containing the active isomers of glycyrrhetinic acid (Biosone G.A.) in 254 cases has shown its value in a variety of dermatological conditions. A trial against the inert base gave a probability figure $P < 0{\cdot}001$. In a comparison with hydrocortisone ointments it compared favourably in subacute and chronic conditions. The ointment was found to be most effective in flexural eczema, traumatic and contact dermatitis, napex neurodermatitis, disseminated neurodermatitis, pruritus associated with psoriasis and in pustular psoriasis. Some value was found in infantile eczema, nummular eczema and in pruritus vulvae and ani. Glycyrrhetinic acid has been shown to act synergistically with the antibiotic neomycin, giving excellent results in impetigo and impetiginised eczema. In psoriasis the depressive action of glycyrrhetinic acid on the inflammatory process, combined with the anti-eczematous action of tar and the keratolytic action of salicylic acid gave more effective and speedier results than any of these used alone. The active form of glycyrrhetinic acid brought relief in cases which had hitherto been intractable to other forms of treatment. It was concluded that certain fractions of the acid have a marked anti-inflammatory action and were effective in a variety of skin diseases, and compared favourably in subacute and chronic conditions, with hydrocortisone. G. F. S.

Iron, Effect of Massive Overload in the Rat. L. Golberg, J. P. Smith and L. E. Martin. (*Nature, Lond.*, 1957, **179**, 734.) Iron-dextran complex ("Imferon") was administered intramuscularly to rats over a period of 18 months, the total dose being 1,650 mg. of iron per kg. Control animals were given equivalent amounts of dextran, in the same way. The iron-loaded rats remained in good health, although growth rate, particularly in males, was less than with the controls. At intervals during the period of treatment groups of rats were killed. The dextran-treated control animals showed no abnormality; in those receiving the iron-dextran there was organ siderosis, but no haemochromatosis. The only changes in the iron-treated animals resembled the characteristic signs of vitamin E deficiency in the rat: rapid post-mortem renal autolysis (from 9 weeks onwards), brown uterus (from 50 weeks onwards) and testicular atrophy (in two instances, only, at 47 and 52 weeks). The most striking feature in all the animals was massive accumulation of ceroid-like pigments, particularly in the kidney. Comparison of iron-treated and vitamin E deficient rats revealed some differences. The increase in tissue non-protein nitrogen accompanying renal autolysis seen in the vitamin deficiency was absent in the iron-treated group. Nor did the kidneys of the iron-loaded rats have a higher Q_{O_2}. Some of the most important signs of vitamin E deficiency were not evident in the animals receiving the iron-dextran complex; muscles, nervous and adipose tissue and incisor teeth were normal. The absence of these characteristics suggests that if a vitamin E deficiency exists in iron-loaded rats this must be localised in susceptible tissues. G. P.