

presents a comprehensive picture, with 107 references, of the present state of our knowledge on a fascinating group of compounds; it is closely related to two articles on organic matter and soil productivity (*ibid.*, Nos. 3 and 4), which were recently the subject of review in *Nature* (200, 222; 1963). The humic substances comprise about half the organic matter in mineral soils; they consist of a series of predominantly aromatic-phenolic polymers with molecular weights rising to beyond 100,000; they are relatively resistant to microbial attack; carboxyl groups are largely responsible for their acidity. They exist in intimate contact with other soil constituents, forming soluble salts with monovalent and many polyvalent cations, being adsorbed by clay, sesquioxides and silica, and bound in some fashion with carbohydrates and proteins. Consequently, the extraction and purification of humic substances present great difficulty and various procedures have been adopted to isolate unaltered material, to obtain comparable fractions from different soils and to remove contaminating substances. Alkali salts of complexing agents are better extractants than alkali hydroxides, and their effectiveness can be increased by acid pretreatment. Purification from ash constituents and from waxes and fats is comparatively simple, but the removal of carbohydrates and proteins has proved to be very troublesome. Fractionation usually gives numerous components grading into each other and showing a continuous variation like a series of similarly constructed polymers of varying molecular weight. Although the measurement of some physico-chemical properties is helpful, the most useful lines of attack on the elucidation of the structure of the humic substances are functional-group analysis and identification of degradation products. But the data on functional groups are conflicting and many of the products of degradation have still to be identified. Nevertheless, the steady application of new techniques in this complex field of work holds considerable promise of extending the information that has already been obtained on the *B* horizon of podsoles.

### Zoonoses

THAT man and his diseases can no longer be regarded in isolation is the theme of a recent issue of *The Practitioner* (191, No. 1145; November, 1963). From an increasing appreciation of the importance of the animal kingdom as a source of disease in man has grown the concept of "The Zoonoses", which forms the subject of a symposium. The term is used in the sense defined by the World Health Organization as "those diseases which are naturally transmitted between vertebrate animals and man". Some are relatively uncommon in Great Britain but may occur at any time. It is essential that general practitioners should be aware of their existence and of their main characteristics. Among zoonoses featured are tuberculosis, brucellosis, *Q* fever, ornithosis, anthrax, leptospirosis, toxoplasmosis, hydatid disease, trichinosis, and various diseases which are transmitted to man by dogs and cats.

### The Night Sky in February

NEW moon occurs on Feb. 13d 13h 02m U.T. and full moon on Feb. 27d 12h 40m. The following conjunctions with the Moon occur: Feb. 11d 19h, Mercury 0.7° N; Feb. 16d 13h, Venus 5° N.; Feb. 17d 09h, Jupiter 4° N. In addition to these conjunctions with the Moon, Mercury is in conjunction with Saturn on Feb. 28d 02h, Mercury being 1.0° S., and Venus with Jupiter on Feb. 28d 08h, Venus being 1.7° N. Mercury is too close to the Sun for observation. Venus is an evening star, setting at 20h 10m, 20h 50m and 21h 40m on Feb. 1, 15 and 29, respectively. Its stellar magnitude is -3.6; its distance decreases during the month from 111 to 94 million miles, and the visible portion of the apparent disk from 0.786 to 0.693. Conditions for observation are becoming very favourable. Mars is too close to the Sun for observation. Jupiter sets

at 22h 40m, 22h 00m and 21h 20m at the beginning, middle and end of the month, respectively. Its stellar magnitude is -1.8 and its distance from the Earth on February 15 is 527 million miles. Saturn is too close to the Sun for observation. Occultations of stars brighter than magnitude 6 are as follows, observations being made at Greenwich: Feb. 22d 19h 22.4m,  $\eta$  Gem. (*D*); Feb. 22d 20h 08.5m,  $\eta$  Gem. (*R*); Feb. 22d 23h 24.4m,  $\mu$  Gem. (*D*); Feb. 23d 00h 12.6m,  $\mu$  Gem. (*R*); Feb. 25d 02h 58.1m,  $\eta$  Cnc. (*D*). *D* and *R* refer to disappearance and reappearance, respectively.

### Announcements

MAJOR WALTER SCOTT, at present director of veterinary research and development at Messrs. Smith, Kline and French, has been appointed scientific director of the Universities Federation for Animal Welfare.

THE Society of Chemical Industry is to undertake a technological and economic enquiry into air pollution and has appointed Mr. Alan R. Smith to make an assessment of how much air pollution causes harm to the community by the cost to the nation from the ill-health of individuals and in the cost of corrosion of materials.

A SYMPOSIUM on "Geological Research in Africa" will be held at Leeds during March 12-14. The object of the symposium is to enable British-based geologists and allied scientists working in Africa to meet one another and discuss mutual problems and interests. Further information can be obtained from Dr. R. L. Johnson, Research Institute of African Geology, the University, Leeds 2.

AN Easter school in agricultural science entitled "Experimental Pedology" will be held in the School of Agriculture of the University of Nottingham during March 23-26. Further information can be obtained from the conference secretary, Dr. D. V. Crawford, Department of Agricultural Sciences, University of Nottingham School of Agriculture, Sutton Bonington, Loughborough, Leicestershire.

A SYMPOSIUM on "Advances in Materials", organized by the Institution of Chemical Engineers, will be held at the Manchester College of Science and Technology during April 6-8. Subjects to be discussed will include: industrial needs and influence on design; new concepts in materials science; the materials-metallics; the materials-polymeric. Further information can be obtained from the Institution of Chemical Engineers, 16 Belgrave Square, London, S.W.1.

A SYMPOSIUM on "Fibres and Finishes—New Developments", organized by the Bradford Chemical Society and the Department of Chemical Technology of the Bradford Institute of Technology in conjunction with the Yorkshire Council for Further Education and the West Riding Section of the Society of Dyers and Colourists, will be held at the Bradford Institute of Technology on February 8. Further information can be obtained from Mr. W. A. Straw, Department of Chemical Technology, Institute of Technology, Bradford 7.

ERRATUM. In Table 3 of the article "Quinine Dimorphism, a Cardinal Determinant of Taste Sensitivity", by R. Fischer and F. Griffin, which appeared on p. 343 of the October 26, 1963, issue of *Nature*, the structural formula of the last compound, "Geigy 34586", is incorrect, inasmuch as the chlorine substituent in the 3-position is missing. The correct formula is:

