

EVOLUTION FOR ALL

Understanding Evolution

By Herbert H. Ross. (A Spectrum Book.) Pp. ix + 175. (Englewood Cliffs, N.J., and London: Prentice-Hall, 1966.) 20s.

THIS book is a remarkably successful attempt to give an account of evolution from the possible modes of beginning of the universe down to the production of man and such extremely recent phenomena as industrial melanism, all done in 165 pages of text with numerous illustrations, yet very readable. The ten principal divisions of the book deal with: history of evolutionary thought; evolution of the universe; life's nature and origin; the progress of life; passage through time (including opportunism, survival and extinction); variation and natural selection; increase in the number of species; the geotectonic factor (influence of the major geological events on evolution); evolution of ecological communities; and progression of change (summary). The width of treatment is unusual and extends to constituent topics as well—it is pleasant to find an author who does not spend his whole space for speculation on geographical speciation—yet in those topics of evolution that I know something about the treatment is remarkably comprehensive and clear although condensed, and very up to date. It would be easy, no doubt, to disagree over some points of emphasis or details of fact or omission, but most of those I have noted seem to me trivial in comparison with the good points of the book. It should be looked at by anyone seeking a good (and cheap) text for students and for non-biologists.

A. J. CAIN

OBITUARIES

Dr Douglas McClean

DOUGLAS McCLEAN, bacteriologist in charge of the Vaccine Lymph Department of the Lister Institute of Preventive Medicine for twenty-five years, died in Oxford on July 10. He was born on May 13, 1896, in Constantinople, where his father was at the time medical superintendent at the British Seamen's Hospital. At the age of nine he came to England, where he was at school until he went to St. Thomas's Hospital in 1914. His medical training was interrupted by three years service as surgeon probationer in the Harwich Force of the Royal Navy, which left a permanent somewhat nautical stamp on him. He returned in 1919 to complete his training, and in 1924 took up the post of pathologist at Great Ormond Street Hospital for Sick Children.

Although he had a real interest in clinical problems he was irked by the inadequacy of current knowledge about the causation and especially the prevention of infective disease, and in 1928 he went to work under Dr (later Sir John) Ledingham at the Lister Institute at Chelsea. Here he was introduced to the study of viruses, especially vaccinia, and in 1930 he was appointed assistant bacteriologist in the Institute's serum department at Elstree. In producing vaccine lymph it was the practice to infect the skin of sheep with seed vaccine prepared in rabbit testicles, and McClean observed that uninfected testicular extracts had a remarkable capacity to enhance the diffusion of substances injected into the skin. His first paper on the phenomenon was published in 1930, and heralded a series of studies on the action of "spreading factor" and its possible role in microbial invasion, in fertilization and in therapeutics. He did not himself characterize the factor as a hyaluronidase, nor was he the first to demonstrate its production by bacteria, but his observation, which was contemporary with a similar independent observation by Duran-Reynals, opened up a new field of research and was a contribution to the

recognition that bacterial toxins might be specific enzymes, which was first proved by M. G. Macfarlane and and B. C. J. G. Knight, also at the Lister Institute, in the case of the lecithinase of *Clostridium perfringens*. McClean became bacteriologist in charge of the vaccine lymph department in 1936, in which role he made a number of significant improvements in the production and stabilization of vaccine lymph, especially by devising a means of virtually eliminating contaminating bacteria by treatment with phenol.

Despite his critical yet enthusiastic approach to his scientific work, the execution of which he thoroughly enjoyed, he never wholly abandoned what might be called an amateur status, and refused to allow science (or administration, which he did well) to exclude his other interests. He enjoyed his garden, his bees, and good conversation—especially accompanied by good wine, of which he was a connoisseur. He shared with his wife (a well known writer and illustrator of children's books) a circle of artistic friends. Finally, he was a firm advocate of socialist principles—and an equally firm upholder of civil liberties—and he found an outlet for an important part of his energies in promoting the work of the Association of Scientific Workers.

J. H. HUMPHREY

University News:

Massachusetts Institute of Technology

PROFESSOR HARRY C. GATOS, at present both professor of electronic metallurgy in the Department of Metallurgy and Materials Science and professor of molecular engineering in the Department of Electrical Engineering, has been appointed associate director of the Center for Materials Science and Engineering.

Reading

DR P. G. HALL, at present reader in geography at the London School of Economics and Political Science, has been appointed to the chair of geography in succession to Professor T. G. Miller, who has been appointed principal of the University College of Rhodesia.

Appointments

SIR STANLEY BROWN, chairman of the Central Electricity Generating Board, has been elected president of the Institution of Electrical Engineers for the session 1967-68. The chairmen of the three divisions of the institution have also been elected as follows: DR E. EASTWOOD, director of research for English Electric, chairman of the Control and Automation Division; MR J. H. H. MERRIMAN, senior director of engineering in the Post Office, London, chairman of the Electronics Division; MR E. C. RIPPON, director of C. A. Parsons and Co., Ltd., Newcastle upon Tyne, chairman of the Power Division.

ADMIRAL O. A. QUIHILLALT of Argentina has been elected chairman of the new Board of Governors of the International Atomic Energy Agency, and Mr N. Ivanchev, governor from Bulgaria, and Miss L. Roesad, governor from Indonesia, have been elected vice-chairmen.

Announcements

THE LALOR Foundation makes annual awards to investigators for the study of basic phenomena and mechanisms in the field of reproductive physiology, and the 1968 programme of awards will give priority to applied scientific and clinical research on intra-uterine phenomena, uterine peristalsis in relation to implantation, early gestation and its control, clinical research on the physical sequelae of abortion, and the like. Further information about these awards can be obtained from the Director, Lalor Foundation, 4400 Lancaster Pike, Wilmington, Delaware.

Meetings

476TH Meeting of the Biochemical Society, November 18, Medical Research Council Laboratories, Carshalton (Executive Secretary, The Biochemical Society, 7 Warwick Court, Holborn, London, WC1).

FLUORO-ORGANIC Chemistry, March 28–29, 1968, University of Birmingham (Assistant Secretary, Society of Chemical Industry, 14 Belgrave Square, London, SW1).

AUTHORITY and Leadership Working Conference, March 29–April 11, 1968, Leicester (Conference Secretary, Centre of Applied Social Research, Tavistock Centre, Belsize Lane, London, NW3).

BIOLOGY of Reproduction in Mammals, April 9–11, 1968, Nairobi (Professor E. C. Amoroso, Department of Physiology, Royal Veterinary College, University of London, Royal College Street, London, NW1).

MARINE Food Chains, July 23–27, 1968, University of Aarhus (Dr J. H. Steele, Department of Agriculture and Fisheries for Scotland, Marine Laboratory, P.O. Box 101, Victoria Road, Aberdeen).

HAEMOPHILIA, August 26–28, 1968, Montreal (The World Federation of Haemophilia, 122 Arlington Avenue, Montreal 6, Quebec).

CORRESPONDENCE

Informed Chemists

SIR,—It is encouraging to those like myself working on the bibliographical side of science to read in a recent issue (*Nature*, 215, 1324; 1967) that British chemistry PhD students are to be kept up to date by computer. The students will all be in their third year and this should mean that they carry the resulting familiarity with mechanized information services over into their future jobs.

In planning this exercise, one wonders why the Office for Scientific and Technical Information thought it necessary to select and train six liaison officers to act as regional agents. Why not make use of university library staffs, already to some extent conversant with local research projects, with far better lines of communication into local chemistry departments and already working in the documentation field? Does OSTI not know that British university libraries already act as local agents for other computerized information services such as that for medical literature (MEDLARS) and that many of them are developing courses on documentation for PhD students, chemists included, which would make an ideal platform for promulgating schemes such as this?

I recognize that the scheme is an experiment, run in conjunction with the Chemical Society's Research Unit in Information Dissemination and Retrieval at Nottingham University. But in an experiment on such a scale and especially one designed also to influence people's future actions, why not normalize as far as possible the business of getting students to describe their research project in terms of an array of subject headings? This is rarely as painless as it sounds. It would be a pity if experience of a rather remotely controlled experiment in information dissemination like this were to put students off the kind of information services, based on libraries, which will be available to them later on in industry or Government research.

Yours faithfully,

R. J. DANNATT

University of Strathclyde,
Andersonian Library,
Glasgow, C1.

Towards a Broader Curriculum

SIR,—Few engineers would disagree with the spirit of the Declaration of the Cambridge Conference on a Broader Curriculum in sixth forms reported in your columns of 23rd September (*Nature*, 215, 1329; 1967), or underestimate the seriousness of any failure to solve the many educational problems involved. D. W. Hutchings in a recent survey for CRAC found that only 137 out of 2,006 science and technology students at 5 major universities had obtained an "A" level in an arts subject.

Priority appears to have been given at the Conference, not unnaturally, to the interface between schools and university, but Dr. Nichol drew attention to looking at education as a whole, and this entails a closer look at the social needs of the country whose taxpayers, after all, foot the bill directly or indirectly. The end point of schools is too apt to be conditioned by the number of university places obtained, irrespective of the suitability of the discipline entered in relation to its later value. Equally important would seem to be the interface between university and the field of postgraduate employment.

It is so often said that universities would be ready to change curricula if they only knew what the customer really wanted, but that the industrial customer gives conflicting requirements. It is suggested that an extensive survey is needed over the whole field of technology on the lines of that conducted in 1961 by Professor Edgeworth Johnstone for chemical engineers, and in 1964 by Professor Hutton and Dr Gerstl for mechanical engineers. The recent CEI/Ministry of Technology survey of 20,000 professional engineers has already shown the superior earning capacity over the £2,000 mark of graduates compared with non-graduates. A further survey conducted in conjunction with other learned societies could yield much of value.

The Hutton/Gerstl survey covering 387 mechanical engineering graduates revealed that the usage of subjects in the practice of their profession ranked in the order—mathematics, engineering drawing, technical report writing, applied mechanics, properties and strength of materials, industrial administration, followed by some fourteen technical subjects with foreign language rating last. But when asked to suggest an ideal course the general opinion favoured a time distribution of

Basic Engineering Sciences, e.g., strength of materials	27%
Fundamental Sciences (maths, physics, chemistry)	23%
English and Humanities	7%
Technical Report Writing	7%
Foreign Languages	7%
Design Engineering	13%
Industrial administration, economics, social science	10%
Speciality engineering, e.g., instrument or textile	6%

which illustrates that these engineers themselves were well aware of the great importance of non-technical subjects, particularly of communication, and of the danger of blinkered curricula. Maybe the doctor provides the remedy, but the patient can at least indicate the symptoms; a similar survey of graduates qualified in the last 10 years, say, including Dip.Techs., might reveal a great many worrying symptoms, with the need for much greater liaison between universities and industry.

Mr Morrison's suggestion of five subjects for university entry prompts the question of whether consideration has been given to the suitability of the proposed European International Baccalaureat.

Any changes in curricula, however, will only be pipe dreams unless an adequate number of well qualified maths and science teachers is forthcoming. The CEI/Ministry of Technology survey indicates that the salaries of maths and science (men) graduate teachers in maintained schools were below those for graduate engineers, particularly after the age of 38.

Yours faithfully,

I. G. AYLEN

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