

CORRESPONDENCE

Energy Crunch

SIR,—Your editorial remarks on “The Energy Crunch” (*Nature*, **243**, 485; 1973) is the latest of several attacks on the BBC’s present science output. I work closely with the BBC without being part of it, so may I comment?

Your opinions about the comparative prospects for fission, fusion and solar energy are the conventional ones among experts, and you are right to air them. With some hedging, I should place my private bets much as you do. But I would not gamble the wellbeing of mankind on the assumption that we are necessarily right. Certainly I would not impugn, as you do, the motives behind television programmes that offer somewhat different opinions on the subject.

Times have changed and experts are no longer regarded as infallible. That is just as well, because the public would be misled much more seriously by too deferential treatment of science and technology than it is by occasional programmes with which some of us happen to disagree.

As for “balance”, which seems to be the keyword in your editorial, what do you mean by it? Do you want equal broadcasting time for Freudians in psychology, for creationists in evolution studies, for anti-drifters in the earth sciences—much as the BBC in political programmes strives tediously to match a Labour man against a Tory? Presumably not, but that is because, looking around, you arrive at opinions about where the good science lies and which of the iconoclasts may turn out to be right.

The popularizer cannot avoid forming opinions either. Even just choosing a topic for a television programme is a value judgment. The quest for objectivity, in popularization as in research, is a subjective thing—a matter of an honest and inquiring disposition—rather than a ride down an asymptote towards some absolute truth.

Yours faithfully,

NIGEL CALDER

8 *The Chase*,
Furnace Green,
Crawley, Sussex RH10 6HW

USSR Jews

SIR,—I noticed lately in *Nature* (**243**, 313; **243**, 427; 1973) you shed some tears over the fate of Jewish scientists in USSR. Why Jews only?

Since the 1937 purges, intellectuals in USSR, specially in western republics, Ukraine, Byelorussia, Estonia, Karelia, Latvia, Lithuania, have been deported and executed on genocidal scale. Selective executions of “war criminals”, of course, still occur with sickening regularity. Yet *Nature*, and the whole Western press, is concerned with the persecution of Jews only, not of people as a whole. If Jews are selected as a special people by Anglo-Saxons, was then Hitler that much wrong after all? Or is it different?

Yours faithfully,

V. SPAKOVSKIS

27 *Shanklin Road*,
Hill Lane,
Southampton

Obituary

Arthur Knyvett Totton

ARTHUR KNYVETT TOTTON, the well-known coelenterate taxonomist who worked for many years at the British Museum, died on January 12, 1973.

He was born on January 6, 1892, at Wallington, in Surrey, and was educated at Berkhamsted School. Wishing to prepare himself for a vacancy in the Natural History Museum he went in 1910 to the Royal College of Science. At the beginning of 1914 he joined the museum staff, becoming an associate worker in 1953 and, until he finally retired in 1967, his contributions to zoology were interrupted only by the two world wars.

As a student he was interested in the breadth of zoology, and the thoroughness with which he gained a wide knowledge of the subject and his early ability as an investigator were both characteristic. He attended some of Sedgwick’s last classes, and his other teachers included E. J. Allen, W. T. Calman, A. D. Darbishire and C. Dobell. He

studied entomology under H. M. Lefroy and could have made it his career. The systematic study of vertebrates and invertebrates, and experimental embryology, he took under E. W. MacBride, and at the latter’s suggestion he began his first research, appropriately enough using material which the trustees of the museum had handed to the college for description. The resulting paper on the development of the vertebral column in a teleost fish (1914) is critical and mature in style. It is significant that in his later work problems of development and homology are often discussed with great insight, and with an indelible interest in evolution.

Captain Totton, as he is remembered by colleagues, served with distinction in the 1914–18 war, and was commissioned in 1915 in the Duke of Cornwall’s Light Infantry. He went to France in 1914 with the 28th Battalion of the London Regiment. He served at Ypres, the Somme District and Arras, and in 1916 received the Military Cross. He was severely wounded in the Somme in

1916, and was invalided out in 1918. He never gave in to the trying after-effects of his injuries, and at the outbreak of World War II he joined the Army Officers’ Emergency Reserve, and took on the duties of ARP warden for the entire British Museum.

On returning to the museum in 1918 he was given sole charge of the coelenterate section. The broad range of his curatorial and other work is reflected in diverse publications extending from accounts of the *Antipatharia and Hydroids of the British “Terra Nova” Expedition* (1923, 1930) to notes on Australian corals (1952), and up to 1935 he contributed to *Zoological Record*. His major interest, however, lay with the siphonophores, among the most complex and exotic of organisms, and among the most challenging to the taxonomist. He set to work on them almost unaided and later said (1954) that it was the study of Bigelow’s Albatross Report (1911) which first lured him to examine these animals and to build up an enormous collection of

them at the British Museum. His first major work on the group was in 1932, on the siphonophores of the Great Barrier Reef Expedition. Amongst many subsequent papers, the outstanding landmarks are the *Siphonophores of the Indian Ocean* (1954), the monograph on *Physalia* (1960) and the crowning achievement, the great *Synopsis* of 1965. Totton was without peer as a siphonophore specialist. His descriptions were based on the most exact study of great masses of material from sundry sources. He took endless pains to present a faithful account of the findings of his predecessors and to set them in just relation to his own. He wrote simple, vivid English, and his works are as readable as taxonomy could conceivably be. In several of his major works he attempted to present a simplified account for non-specialists along with the more technical parts.

His paedophore hypothesis (1960) has been influential among younger workers and his opinions are convincing because he distinguished carefully between "stimulating speculation on phylogeny" and "descriptive matter", although even he thought that it was no easy task to reconstruct the zigzag course of evolution in this group. First and foremost, however, he was a taxonomist, to whom a library of specimens was as essential as access to books. The examination of plankton samples (many from Discovery collections) and the analysis of fragmented specimens involved no little labour, and he was fortunate in the help given over many years by his assistant Mr Ernest White, for whom he expressed his esteem by conferring his name on a new species. Similar tributes were paid to other colleagues, and Totton's nomenclature has a zest of its own, of which anyone who knows of his lifelong

interest in the Scout movement will find *Lensia lelouveteau* a good example.

His essential and very exact taxonomic groundwork has made it possible to follow the movements of water masses in the sea by studying the distribution of siphonophore species, as, for example, in Dr J. H. Fraser's work in the Northeast Atlantic. Such water movements have very profound effects on fisheries.

Opportunities to work with living siphonophores afforded him joyful delight, and in the tradition of great naturalists he conveyed his enthusiasm to all who worked with him. His writings continually bring out the need to observe, or to revise facts, and are never for a moment dull. All beginners, he maintained, should see living material, and today all zoologists would agree with him. He himself had few such opportunities in earlier days, although in 1930 he visited the Caribbean on HMS Rodney. In 1955, following Haeckel's geographical intuition, he went to Arrecife with G. O. Mackie to work on *Physalia*, and from 1949 he made visits to Villefranche year by year so that the Station Zoologique became a second home.

Totton was the least stuffy of men. He could utter outrageously reactionary views but this was often done mischievously to provoke a response, and arguments often ended in his yielding his position in an apparent state of apopleptic self-restraint, somehow gratifying to his antagonist. He had remarkable ability to enlist the efforts of others on behalf of his projects, combining the qualities of Ancient Mariner, Svengali, and Portuguese Man-of-War. His friends will remember his sardonic humour, his innate romanticism, his warmth and his *esprit*.

Erratum

IN the article "Subcutaneous Growth of Human Tumours in Mice" by C. R. Franks, F. T. Perkins and J. Thornton Holmes (*Nature*, 243, 91; 1973) paragraph 3, line 3, should read "and 100 $\mu\text{g ml}^{-1}$ streptomycin", instead of "100 mg streptomycin".

Reports and Publications

not included in the Monthly Books Supplement

Great Britain and Ireland

Institution of Gas Engineers. Communications. No. 867: Presidential Address, 109th Annual General Meeting, London, 16/18 May 1972. By J. A. Buckley. Pp. 17. 75p. No. 868: Natural Gas as a Factor in Air Pollution Control. By Dr. Alice Garnett and P. Read. Pp. 23. 75p. No. 869: The International Consultancy Service: An Economic and Social Force in Global Gas Industry. By C. E. Mills. Pp. 17. 75p. No. 870: The Glenmavis Natural Gas Liquefaction and Storage Facility—Experiences in its Design, Construction and Commissioning. By A. B. Garbutt and L. Thompson. Pp. 36. 75p. No. 871: Experience Gained in the Commissioning of the Ling Storage Installation in Stuttgart. By Dr. Heinz Berge and Jürgen Poll. Pp. 17. 75p. No. 872: Long Distance Liquid Natural Gas Pipelines. By Prof. G. Walker, Prof. D. M. Coulter and Prof. D. H. Norrie. Pp. 19. 75p. No. 873: Some Design Considerations and Operational Experience with UK Gas Compressor Stations. By A. Cleveland and D. A. Young. Pp. 31. 75p. No. 774: Converting Customer Service. By B. C. Smith and H. B. Healy. Pp. 22. 75p. No. 875: Marketing—Southern Style. By J. F. Doran. Pp. 29. No. 876: Gas Control with an On-Line Computer. By K. R. Brookes and A. W. Coles. Pp. 26. No. 766: Change and Exchange in International Energy Supply. By Carol V. Kroeger. Pp. 24. 109th Annual General Meeting, London, 1972—Discussions. Pp. 163. £1. (London: The Institution of Gas Engineers, 1973.) [262]

Other Countries

Bureau International des Poids et Mesures. Le Système International d'Unités (SI). 2e Edition. Pp. 40. (Sevres, France: Bureau International des Poids et Mesures, 1973.) [262]

European Organization for Nuclear Research, CERN. CERN 73-2: A Split Field Magnet Geometry Fir Program: NICOLE. By M. Metcalf, M. Regler and C. Broll. Pp. 33. (Geneva: CERN, 1973.) [262]

En la Marcha Universitaria de Avance, Extension y Ascenso. Por Dr. Jose Joaquin Izquierdo. Pp. 48. (Mexico, DF: Dr. Jose Joaquin Izquierdo, Calle de Colima numero 367, 1972.) [262]

HOW TO BUY NATURE

The cost of one year's subscription to NATURE is:

| | UK & elsewhere | US & Canada |
|--|----------------|-------------|
| Nature (Friday) | £16 | £20 |
| Nature & Nature Physical Science or Nature New Biology | £24 | £33 |
| Nature New Biology or Nature Physical Science | £10 | £15 |
| All three editions | £29.50 | £44 |
| Index (1972) | £1 | £1.50 |

(Charges for delivery by air mail on application). Subscribers in North America may be able to claim a tax rebate against their NATURE subscription.

Editorial, Advertising and Publishing Offices of NATURE

MACMILLAN JOURNALS LIMITED
4 LITTLE ESSEX STREET, LONDON WC2R 3LF
Telephone Number: 01-836 6633. Telegrams: Phusis London WC2R 3LF
Telex 262024

MACMILLAN JOURNALS LIMITED
711 NATIONAL PRESS BUILDING
WASHINGTON DC 20004
Telephone Number: 202-737 2355. Telex 64280

Advertisement Department

MACMILLAN JOURNALS LIMITED
4 LITTLE ESSEX STREET, LONDON WC2R 3LF
Telephone Numbers: UK 01-836 6633. USA 202-737 2355

Subscription Department

MACMILLAN JOURNALS LIMITED
BRUNEL ROAD, BASINGSTOKE, HANTS RG21 2XS
Telephone Number: Basingstoke 29242

Classified advertisements

T. G. SCOTT & SON, LIMITED
1 CLEMENT'S INN, LONDON WC2A 2ED
Telephone Number: 01-242 6264/01-405 4743
Telegrams: Textualist London WC2A 2ED
Registered as a newspaper at the Post Office

Copyright © Macmillan Journals Limited, July 20 1973