

ence of its gradual breakdown, especially upon heating and upon even small amounts of mechanical shearing. Although definite figures are impossible to give because of the quantities available, we are sure that not a single worker in the field shares Dr Donahoe's science fiction worries.

There is still no adequate explanation of the phenomenon, and no coherent picture of its properties. One of the greatest difficulties in even accepting the existence of a more stable phase is its apparent absence in nature. Indeed, this is the most persuasive evidence of its inability to grow at ordinary water's expense, for it has stood the test of billions of years. The classic conditions for its formation—a quartz surface and greater than 95 per cent humidity—are very widespread in nature, yet no anomalous water has been detected. If it can grow at the expense of ordinary water, we should already be a completely dead planet.

Yet we are not, and totally unlikely to become so from this source. By all means draw the attention of scientists to the dangers of their work, but make sure it is a real danger before alarming everybody else.

Yours faithfully,

J. D. BERNAL  
P. BARNES  
I. A. CHERRY  
J. L. FINNEY

Department of Crystallography,  
Birkbeck College,  
(University of London),  
Malet Street,  
London, WC1.

STR.—Donahoe's recent letter (*Nature*, **224**, 198; 1969) prompts us to draw attention to the present uncertainty concerning the nature and properties of "anomalous" water. First, it must be emphasized that, whatever the correct interpretation may be, several of Derjaguin's experimental observations have been confirmed by recent work in several laboratories including our own. Anomalous properties are readily observed when saturated water vapour is allowed to condense in silica (or 'Pyrex') capillaries with diameters less than 50 micrometres, and the bulk of the ordinary water removed by lowering the vapour pressure by about five per cent. This is true even when the experiment is done in the presence of air and atmospheric pressure.

Because of the difficulty of making precise measurements on such small samples, some of the physical properties of "anomalous" water are still subject to some uncertainty. In particular, those listed by Donahoe cannot all be accepted without question. "Anomalous" water does not have negligible vapour pressure for it can be distilled; and although a density of 1.4 g/cm<sup>3</sup> has been reported, this value has been challenged recently by Mansfield<sup>1</sup>. Nor is there yet any conclusive evidence that "anomalous" water is more stable than ordinary water. The decreased vapour pressure of mixtures of "anomalous" and ordinary water is certainly no evidence for the greater stability of the anomalous species.

The mechanism by which "anomalous" water is formed is still not understood. The available evidence suggests that it forms only at the silica surface at the onset of condensation; subsequent condensation forms ordinary water which dilutes the anomalous species. There seems to be no evidence at all that, in solution in ordinary water, further "anomalous" water is formed spontaneously.

In view of the comparative ease with which "anomalous" water can be produced in the laboratory, it seems highly probable that it is also formed under terrestrial conditions, where suitable media and appropriate humidity fluctuations occur. Indeed, some of the earliest suspicions of the existence of an anomalous form of water are to

be found in work done thirty-five years ago on natural materials<sup>2</sup>. Ordinary and "anomalous" water must then surely have coexisted on Earth throughout geological time, without the kind of catastrophe envisaged by Donahoe. While, therefore, we respect Donahoe's concern that proper vigilance should be maintained in any research involving the preparation of new materials, we consider that none of the existing evidence warrants the pessimistic conclusions he reaches.

Robert Burns's affections were guaranteed to remain constant "till all the seas run dry". While he may not have envisaged the possibility that the oceans might instead become anomalous, we feel that his shade may derive some consolation from the fact that they have not already done so.

Yours faithfully,

D. H. EVERETT  
J. M. HAYNES  
P. J. McELROY

Department of Physical Chemistry,  
University of Bristol.

<sup>1</sup> Mansfield, W. W., *Abst. IUPAC Conf.* (Sydney, Australia, 1969).

<sup>2</sup> Wilson, B. H., *J. Soc. Chem. Ind.*, **53**, 397 (T) (1934).

### Teaching and Scientific Research

STR.—Professor M. C. R. Symons, in his excellent article "Teaching and Scientific Research" (*Nature*, **223**, 353; 1969), reports his experience with the scientific literature as follows: "The routine coverage of current literature is a task of very considerable magnitude, which gets progressively worse. Unfortunately, . . . one can spend hours trying to understand one paper. There may be hundreds of papers each month that need to be read carefully, and so this is clearly a dominant aspect of our work".

Professor Symons's experience accords with my own and, I believe, with that of most other scientists. Consequently, I suggest that we scientists study our method of reporting research and thereby try to find a way of designing the research report for rapid reading and quick comprehension.

From my own brief studies, I predict that on the average we can at least double the rate at which research reports can be read understandingly and that we can simultaneously decrease, by at least one-half, the accompanying reader fatigue.

Should we succeed in designing reports for extremely rapid comprehension and ease of reading, the benefits to science would be incalculable.

Yours faithfully,

F. BRUCE SANFORD

US Bureau of Commercial Fisheries,  
Division of Publications,  
Seattle, Washington 98101.

### University News

**Dr L. Rotherham**, Central Electricity Generating Board, has been appointed Vice-Chancellor of **Bath University of Technology** from September 1, 1969.

**Professor D. K. Britton**, University of Nottingham, has been appointed to the chair of agricultural economics tenable at **Wye College**, University of London.

**Professor C. P. Whittingham**, Imperial College of Science and Technology, **University of London**, has been elected Dean of the Royal College of Science.

**Mr B. Shackel**, EMI Electronics Ltd, has been appointed a professor of ergonomics in the department of ergonomics and cybernetics, **Loughborough University of Technology**.

**Dr J. L. Hamerton**, Guy's Hospital Medical School, University of London, has been appointed director of the Genetics Laboratory, the **Children's Hospital of Winnipeg**, and associate professor, department of paediatrics, **University of Manitoba**.

## Appointments

**Professor E. F. Scowen**, St Bartholomew's Hospital, London, has been appointed chairman of the **Committee on Safety of Drugs**, in succession to Sir Derrick Dunlop. Dr A. C. Frazer had accepted an invitation to succeed him, but died unexpectedly before the committee met in June.

**Dr A. Kelly** has been appointed a deputy director at the Ministry of Technology's **National Physical Laboratory**, and will have executive responsibility for the Materials Group. Since October 1967 Dr Kelly has been superintendent of the Division of Inorganic and Metallic Structure.

**Dr J. M. Lock**, Royal Radar Establishment, has been appointed director of the **United Kingdom Scientific Mission** in Washington, DC, and Counsellor (Scientific) at the British Embassy there. He replaces Mr R. G. Voysey who has returned to the UK.

**Professor A. H. Chilver**, University College, London, has been appointed principal of **Cranfield College of Aeronautics**, in succession to Professor A. J. Murphy, who retires at the end of this year.

**Mr J. G. N. Brown** (Oxford University Press), **Dr J. Howlett** (Atlas Computer Laboratory of the Science Research Council) and **Professor G. D. Sims** (University of Southampton) have been appointed to the **Advisory Committee for Scientific and Technical Information** as from October 1, 1969.

**Mr J. M. Ferguson** (GEC Power Engineering, Ltd), **Mr D. H. Lewis** (Manchester and Salford Equitable Society, Ltd) and **Mr D. H. Darbishire** (a farmer of Leamington Spa) have been appointed to be members of the **Metrication Board**.

**Dr H. A. Gebbie** has been appointed a National Bureau of Standards Senior Research Fellow.

## Announcements

The Trustees of the **British Museum (Natural History)** have elected **Dr J. E. Smith**, Marine Biological Association Laboratory, Plymouth, as their chairman from October 1, 1969, in succession to Sir Landsborough Thomson.

**Professor M. Eigen**, Max-Planck-Institute for Physical Chemistry, has been made an Honorary Fellow of the **Weizmann Institute of Science**.

The **Medical Research Council** has awarded a grant of £10,000 for capital equipment and £3,600 per annum for scientific and technical assistance and running expenses (for three years) to Professor S. Rose, professor of biology in **The Open University**. This grant is in support of research on environmental factors in regulation of amino-acid and protein synthesis in the brain.

The **1969 Arches of Science Award** of the **Pacific Science Center** in Seattle, Washington, will be presented to **Gerard Piel** of New York, publisher of *Scientific American*, in recognition of his contributions to the public understanding of the meaning of science to contemporary man.

The **Royal Society Mullard Award** for 1969 has been awarded to **Mr R. M. Clarkson**, until recently director of research, Hawker Siddeley Aviation, Hatfield, for the advances in aircraft project conception which he has made, and, in particular, the initiation of the HS 125 aircraft.

The **1969 A. A. Benedetti-Pichler Award**, sponsored by the American Microchemical Society, has been granted to **Professor B. B. Cunningham**, University of Califor-

nia (Berkeley), in recognition of his contributions to the development and use of microtechniques, especially for the study of transuranium elements.

**ERRATUM**.—In the article "Bremsstrahlung Radiation in Intense Magnetic Fields" by Simon and Strange (*Nature*, **224**, 49; 1969), equation (2) should read:

$$\alpha_{\omega} = \frac{8\pi^3 c}{\omega^2} \frac{\cos \theta n(\theta)}{n_r^2} \int_{-\infty}^{\infty} Q_{\omega} \frac{df}{dp_z} dp_z$$

and five lines below read "Assuming that  $Q_{\omega}(p_z = \pm \infty) f(\pm \infty) = 0$ ".

**ERRATUM**. In the article "Mascons, Marid and Sinuous Rilles—A Postulated Igneous Origin" by Kane, Carucci, Turner and McEntee (*Nature*, **224**, 164; 1969), the second word of the title should be "Maria"; the last word on line 27, "craterlets"; the last word on line 37, "or"; and the first word on line 41, "streams".

**CORRIGENDUM**. In the article "Petrological, Magnetic and Chemical Properties of Basalt dredged from an Abyssal Hill in the North-east Pacific" by B. P. Luyendyk and C. G. Engel (*Nature*, **223**, 1049; 1969), several lines were omitted from the text. The first few sentences of the second paragraph on page 1050 should read: "The magnetic properties of the basalts were measured on the Scripps Institution's astatic magnetometer and low-field susceptibility bridge. Replicate measurements were done on three 2.5 by 2.5 cm cores. They were not demagnetized for the measurements. The mean NRM of the samples is  $(2.69 \pm 0.28) \times 10^{-3}$  EMU cm<sup>-3</sup> and the mean susceptibility is  $(2.39 \pm 0.003) \times 10^{-4}$  EMU oersted<sup>-1</sup> cm<sup>-3</sup>, giving a Koningsberger ratio,  $Q$ , of approximately 20 at 0.5 oersted field strength".

**ERRATUM**. In the article "Identification in Cleaving Embryos of Three RNA Species serving as Templates for the Synthesis of Nuclear Proteins" by L. H. Kedes and P. R. Gross (*Nature*, **223**, 1335; 1969), the second sentence on page 1338 should read "The embryos go through ten division cycles (making about a thousand cells) in the first 6–8 h after fertilization". On page 1339, the first line should be "Spirin<sup>19</sup>", this does not happen with 9S RNA ...".

## International Meetings

November 12–14, **Petrology of Igneous and Metamorphic Rocks from the Ocean Floor**, London (Executive Secretary, The Royal Society, 6 Carlton House Terrace, London SW1).

November 13–14, **Meeting of the Biochemical Society**, Coventry (Executive Secretary, 7 Warwick Court, Holborn, London WC1).

November 17–20, **British Insecticide and Fungicide Conference**, Brighton (Mr P. A. Gooch, Room 303, Alembic House, 93 Albert Embankment, London SE1).

November 21–23, **Chemical and Biological Warfare**, London (International CBW Conference, Organizing Committee, c/o WILPF, 29 Great James Street, London WC1).

January 8–13, **Taxonomy and Biology of Blue-Green Algae**, Madras (Professor T. V. Desikachary, University Botany Laboratory, Madras-5, India).

January 9–10, **Blood Constituents and Arterial Disease**, Cambridge (Secretary, Cambridge University Medical School, Hills Road, Cambridge, UK).

January 19–23, **Gordon Research Conference—Electrochemistry**, Santa Barbara (Office of the Director, Gordon Research Conferences, Pastore Chemical Laboratory, University of Rhode Island, Kingston, Rhode Island 02881, USA).