

be tried, after the true scientific method, experimentally. Only the other day, the late Prof. Muirhead, then the doyen among English philosophers, publishing his reminiscences as an octogenarian, recalled the arts curriculum at Glasgow in the seventies of last century, which still kept alive its fidelity to the medieval tradition. He gives as his reasoned opinion, formed after experience of the Oxford system and that of the new English universities and of several of the great American universities, both State and other, that, "for breadth of training and as a preparation either for business life, for the professions, or for further specialized study, there is nothing which, on the whole, has proved better than this old Quadrivium of Classics, Mathematics, Philosophy and Physics, all softened and humanized by a halo of English literature". Then there is the further problem of finding teachers of science able and willing to bring home its cultural significance to students without experience of a laboratory. The tradition that the training of highly specialized researchers alone is the concern of the teacher of science is so strongly rooted that the cultural value of science has almost vanished from the picture. The arts student in our universities has no opportunity of learning the bearings on human life of the mysteries that are being enacted within the precincts of the laboratory. There is serious need for lecturers to mediate between the specialist and the public, possessed of the gift for expounding, like Huxley in his generation, or Bertrand Russell, in his "A.B.C. of Atoms", the leading currents of contemporary scientific thought in language intelligible to the thinking public.

All the speakers at this Conference, except perhaps Prof. Le Gros Clark, who confines his remarks to the teaching of biology and its applications to the education of the citizen, recognize that it is the task of science to throw light on the problem of moral value. Dr. Waddington, as we should expect from his recent volume on "Science and Ethics", which has deservedly arrested the interest of the public, believes that evolutionary science offers the key to its solution. That "man himself is, after all, a member of the animal world" is, of course, a truism of which we do not need the biologist to assure us; it was well known to antiquity, and there is a mass of contemporary evidence to bring home to us how close the ape and the tiger lie to the surface of human nature. But man is not merely an animal; he is a thinking animal, an animal with a moral consciousness, capable of extending his outlook both in thought and action beyond the bourne of time and space.

In my contribution to Dr. Waddington's book, I ventured to question whether the appeal to evolution could justify the absolute claim of moral obligation. Dr. Waddington's suggestion, reiterated at this Conference, that "the highest duty of man should be to carry forward the main stream of evolution" seems to make larger drafts upon the future than is warranted by our knowledge of the course of evolution. Does that knowledge really bear out Prof. Myres's contention that, despite the tragic antithesis of the ethical and cosmic processes, "good must win"? Prof. Myres adds the proviso, "if all good men work together in the cause of good". Can evolutionary science enlighten us, as Dr. Waddington believes it can, as to the nature of what is good? The menace of entropy is surely enough to give us pause. Even if we restrict our view to the facts of recorded history, what evidence do we find of uniform advance

in human morals? Does it not look to-day as if the human race were moving rapidly and of deliberate purpose down the slope that leads to self-destruction?

Dr. Waddington closes his address with some pertinent remarks on the trend towards socialism, characteristic of the modern cultural outlook, and suggests that science, by emphasizing man's essentially social nature, may play a "by no means negligible part in bringing the new society to birth". He holds that as in the humanism of the Renaissance, a purely this-worldly individualism, which found appropriate embodiment in art, superseded the other-worldly sociality of the Middle Ages; so a this-worldly sociality is destined to replace the individualism of the capitalist epoch that is now in process of disintegration, with science as its fitting medium of expression. Science will thus replace art, as art replaced religion, as the predominant human interest.

But is this picture of the dialectical process true to fact? Has interest in art shown any tendency to decline, for example, in Soviet Russia? And what about religion? "En mon temps on avait Dieu", said the old French marquis in the play; and it sometimes looks as though even in Russia they had him still. It is at all events matter for argument whether theism cannot offer a more promising solution of the problem of value than the optimism which pins its faith to the evolutionary process. But this is a view which, I fear, would scarcely find favour among those who collaborated in this Conference.

OBITUARIES

Dr. Henry Forster Morley

THE death of Henry Forster Morley occurred on April 3, 1943, in his eighty-eighth year. He was well known to chemists and other scientific men, both in Great Britain and abroad. Over a long period of time Morley and his wife, who died only a few weeks before him, were frequent visitors at scientific gatherings and until recently they customarily attended the conversaciones and evening meetings of the Royal Institution.

Forster Morley, born on October 23, 1855, was the eldest son of the late Prof. Henry Morley, sometime professor of English literature at University College, London. He was educated at University College School, University College, London, and proceeded to the Universities of Paris, Berlin and Bonn. He was assistant professor of chemistry at University College, London, in the time of Williamson's professorship. He also held the posts of professor of chemistry at Queen's College, London, and lecturer in chemistry at Charing Cross Hospital. He acted as examiner in chemistry to the Universities of London, Oxford, to the Conjoint Board, the Society of Apothecaries and elsewhere.

In addition to his original publications in chemistry, Forster Morley prepared, in 1899, in conjunction with Patterson Muir, a revised edition of "Watt's Dictionary of Chemistry", a work which still continues to serve useful purposes. The text-book of organic chemistry he published in 1884 has lasting merit, inasmuch as in dealing with the practical relationship, properties and preparation of organic

substances it arouses the student's interest in these aspects before his attention is concentrated on the theoretical framework of organic chemistry. It is a remarkable fact that this text-book is still in use. He also acted as director of the central bureau concerned with the preparation of the International Catalogue of Scientific Literature published by the Royal Society. The first annual issue of this great work under his directorship was published in 1903 and annual issues followed up to the fifteenth, dealing with the year 1915, after which the work was suspended owing to the War of 1914-18. After peace came, there were great difficulties in the way of resuming the work, and in 1922 it was decided not to continue it further.

Morley's earliest scientific publication appears to have been a paper on the Groves gas battery published in 1878. Another paper published in 1878 was one with L. Claisen describing the preparation of phenylglyoxylic acid and its ethyl ester by the interaction of ethyl oxalyl chloride and mercury diphenyl. In 1879 he investigated, with C. Wurster, the methylation of *m*-phenylene diamine and obtained the tetramethyl derivative. He also examined the action of nitric acid on the new compound. In the same year he studied the action of nitrous acid on diphenylethylene diamine and diphenyldiethylene diamine, obtaining the nitrosamines, from the second of which he prepared diphenyl diethylene tetramine.

In 1880 some work on bases allied to choline was published. The interaction of monochlorhydrin with mono- or dimethylamine was found to give methyl diox-ethylene diamine and the corresponding dimethyl compound. The action of propylene and *iso*-propylene chlorhydrins with trimethylamine gave the trimethyl hydroxy propylamine chloride and the corresponding *iso* compound. By the interaction of chlorhydrin with mono- and dimethylamines he obtained the mono- and dimethyldioxy ethylene amines.

In 1882 the action of an aromatic amine (*p*-toluidine) and propylene oxide was tried, and oxypropyl *p*-toluidine was isolated as a crystalline solid. In 1885 he worked with A. G. Green on the constitution of the propylene chlorhydrin obtained from glycerin. It was shown to be mainly $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{Cl}$, but an admixture of the isomer was not excluded. The action of zinc ethide on the benzoyl derivative of the chlorhydrin was investigated and found to follow a somewhat unexpected course, giving rise to a member of a new series of compounds which were named 'ketates'. In the course of this work propiophenone was prepared for the first time in solid form. In the same year, in conjunction with W. J. Saint, he prepared and investigated ethyl thioxalate. Two years later he wrote some criticism of H. E. Armstrong's views on substitution in the benzene nucleus. In 1891 he published, in conjunction with E. Hari, an account of the *p*- and *iso*-propyl *p*-toluidines.

Morley did not entirely retire until he was eighty-four, when he resigned from his last examinership on his wife's persuasion—although he was asked to continue for a further year.

A man of happy disposition and simple tastes, he loved to welcome his friends to his house at Hampstead or to his quiet home and garden in Midhurst, the peace of which was rudely disturbed by enemy action a few weeks before his death. He himself fortunately escaped injury.

FRANCIS H. CARR.

Prof. A. A. Boon

THE death occurred in Edinburgh on April 1 of Prof. Alfred Archibald Boon, emeritus professor of chemistry in the Heriot-Watt College. He was seventy-six years of age, unmarried, and had been in failing health for some years.

Born in India, where his father was in the Indian Medical Service, Boon graduated B.A. at the University of Madras, then went to the University of Edinburgh to study chemistry under Crum Brown and natural philosophy under Tait, whose lectures appealed to him very much. He graduated B.Sc. in 1898, then took the D.Sc. degree in 1905, his researches being in the field of organic chemistry. Boon was always keenly interested in the medical and pharmacological aspects of chemistry.

For some years Boon was on the staff of one of the training colleges in Edinburgh and was also a part-time member of the chemistry staff of the Heriot-Watt College. On two occasions, he conducted courses for teachers in Dublin on the invitation of the Board of Agriculture and Technical Instruction for Ireland. He soon became a full-time member of the staff of the Heriot-Watt College as lecturer in organic chemistry and, on the death of Prof. John Gibson, became acting head of the Chemistry Department in 1913. In 1919, he was appointed professor of chemistry, a post which he held until his retirement in 1931 with the title of emeritus professor.

Boon was a very able teacher and took great care in the supervision and administration of his Department, which developed greatly under his direction, among the developments being courses in paper-making, brewing, and pharmacy. The interests of his Department and of his students came first; he never seemed to forget a student. The heavy administrative and teaching work he had to bear gave him little opportunities for research, to which, however, he made contributions. In all his teaching he always stressed the great importance of fundamental principles.

During the War of 1914-18, he undertook investigations for the Services, particularly for the Admiralty, such as the systematic examination of oils collected from the surface of the North Sea whenever a German submarine was destroyed, the first of these being at Fidra in the Firth of Forth.

On several occasions, Boon served on the Council of the Institute of Chemistry, he was for many years a member of the Board of Examiners in Scotland of the Pharmaceutical Society of Great Britain, and served on several committees dealing with the training of pharmacists.

A man of deep religious convictions, Boon was a hater of injustice, was very conscientious, fair-minded, and helpful to any who sought his aid or advice. A cricketer and a swimmer in his younger days, he took up golf in later years and enjoyed his holiday in North Berwick; he became an able player, as many of his friends found. To those who knew him he was a true friend.

F. J. WILSON.

WE regret to announce the following deaths:

Sir Thomas Middleton, K.C.I.E., K.B.E., C.B., F.R.S., chairman of the Agricultural Research Council since 1938, on May 14, aged seventy-nine.

Sir Arthur Newsholme, K.C.B., sometime principal medical officer under the Local Government Board, on May 17, aged eighty-six.