

a considerable interval of time elapses between decompression and the onset of symptoms due to bubble-formation. It is commonly fifteen or twenty minutes, and often far more, before the appearance of symptoms caused by bubbles after rapid decompression from a high atmospheric pressure. Sudden effects, such as those said to be produced by bursting shells, are never observed, however rapid the decompression may have been. The formation of bubbles of sufficient size to do any harm is evidently a process which takes considerable time. A momentary decompression, even if it were extreme, could scarcely, therefore, have any serious effect.

If, however, minute bubbles were formed, they would rapidly disappear again when the momentary wave of negative pressure had passed. Abundant experience has shown that there is no more rapid and certain means of treating the symptoms due to bubbles than recompression. When men who have come out of compressed air are affected, they can be relieved by returning them to the compressed air from which they came, or placing them in a medical recompression chamber provided for the purpose. As an instance of the application of this treatment, a recent case may be recorded of a naval diver who, owing to some emergency, had returned to surface suddenly, without carrying out the prescribed regulations for safety. About twenty minutes afterwards he became ill, lost consciousness, and was apparently dying from bubble formation. In accordance with the recommendations for dealing with such a case, in the absence of a recompression chamber, his helmet was screwed on, and he was then lowered to the depth from which he had come. He recovered consciousness rapidly, and was soon able to answer the telephone, after which he was safely brought up, with due precautions. In the case of a man exposed only momentarily to decompression, the remedy for bubble-formation is, of course, automatically applied at once, since he returns at once to the pressure from which he was decompressed.

Recent investigations in this country have shown that symptoms due to bubble-formation do not occur unless the absolute barometric pressure is diminished by more than half. Thus it is safe to decompress rapidly from two atmospheres' pressure to one, or from six to three; and the Admiralty regulations for safety from bubble-formation in diving are based on this fact. Hence a sudden diminution of pressure from normal to half an atmosphere would not be dangerous, even if the decompression were a prolonged one. The momentary diminution observed by M. Arnoux was, however, only 350 mm., or not quite half an atmosphere.

It appears, therefore, to be impossible to accept the bubble theory of the action of bursting shells in killing men without visible wounds or mechanical injury. The newspaper accounts of men being killed by bursting shells in some sudden and mysterious manner, without wounds or bruises, appear to be imaginary. The experi-

ence of those who have been exposed to shell fire does not, so far as the writer's inquiries go, lend any support to these accounts. Neither poisonous gases nor any other known cause would account for men being instantly killed without mechanical injuries. An air-wave of sufficient violence may doubtless knock men over and inflict mechanical injury capable of causing death; but the actual fatal injuries caused by shells appear to be almost all due to fragments of metal or of stone or other material set in motion by the explosion.

J. S. HALDANE.

DR. J. MEDLEY WOOD.

WE record with regret the death, on August 26, at the Botanic Gardens, Durban, in his eighty-seventh year, of the veteran director of the Natal Herbarium, Dr. John Medley Wood. Dr. Medley Wood was a native of Mansfield, Nottinghamshire, and had resided in Natal for sixty-three years.

Before his appointment as curator of the Natal Botanic Gardens in 1882 he practised for a time as a solicitor, and then went trading to Zululand, afterwards devoting himself to farming. His home was then at Inanda, where he spent some ten years, and besides undertaking experiments in the cultivation of arrowroot and castor oil he interested himself in the local flora, and contributed large and important collections of Natal plants to Sir Joseph Hooker for the National Herbarium at Kew. His activities in this latter direction were naturally stimulated on his appointment to the Gardens. Not only did he continue to enrich the collections at Kew, but he founded and gradually built up the very valuable Herbarium of Natal plants at Durban, which is a model of what a colonial herbarium should be.

When Dr. Medley Wood was appointed curator of the Natal Garden in February, 1882, by the Durban Botanic Society, the condition of the garden was by no means flourishing, but as funds allowed he was not long in restoring it to a condition of beauty and usefulness. The value of his work was so far appreciated that the Government grant towards the upkeep of the garden and the maintenance of the collections was gradually increased, and in 1902 the new building for the Herbarium was completed. In 1909 the Herbarium collection consisted of some 43,000 mounted and classified specimens. Medley Wood's publications on the Natal flora form valuable contributions to botanical science. In 1886 he published an analytical key to the orders and genera of Natal plants, but the most important of his works is that entitled "Natal Plants," of which six volumes have been published, the first part, consisting of fifty plates with descriptions, having appeared in 1898. Other useful publications include his "Handbook to the Flora of Natal" (1907) and a "Revised List of the Flora of Natal" (1908). His "Guide to the Trees and Shrubs in the Natal Garden," published in 1897, giving dates of planting, is a valuable record of

the work he did for the colony in the introduction of useful and interesting plants. He also did much for the improvement of the sugar-planting industry, and investigated many other problems of economic importance. In 1908 the Government grant for the garden and herbarium was much reduced, but although sadly hampered Medley Wood did not relinquish his efforts, and he was keenly interested in his work up to the end.

Dr. Medley Wood was appointed director of the Natal Garden, but he ceased to hold that office when it was recently handed over to the Corporation of Durban, and he then became director of the Natal Herbarium.

Two years ago the honorary degree of D.Sc. was conferred upon him by the University of the Cape of Good Hope, an honour which was a very fitting recognition of the great value of his services to botanical and agricultural science in South Africa, and gave much pleasure to his many friends.

NOTES.

WE notice with much regret the announcement of the death, at ninety-two years of age, of M. J. H. Fabre, whose patient studies of the life-histories of insects, as recorded in his "Souvenirs Entomologiques" and other works, placed him in the front rank of outdoor naturalists throughout the world.

THE Faraday Society will hold a general discussion on "The Transformations of Pure Iron" on Tuesday, October 19. The president, Sir Robert Hadfield, will preside over the discussion, which will be opened by Dr. A. E. Oxley, of Sheffield. Tickets may be obtained from the secretary of the Faraday Society, 82 Victoria Street, S.W.

WE learn from *Science* that Dr. Max Planck, professor of physics at Berlin, and Prof. Hugo von Seeliger, director of the Munich Observatory, have been made knights of the Prussian Order of Merit. Dr. Ramón y Cajal, professor of histology at Madrid, and Dr. C. J. Kapteyn, professor of astronomy at Groningen, have been appointed foreign knights of the same Order.

THE council of the Chemical Society has arranged for three lectures to be delivered at the ordinary scientific meetings during the coming session. The first of these lectures will be delivered on November 18, by Dr. E. J. Russell, who has chosen as his subject, "The Principles of Crop Production." The titles of the two later lectures to be delivered on February 3 and May 18, by Prof. W. H. Bragg and Prof. F. Gowland Hopkins, respectively, will be announced later.

THE new session of the Royal Geographical Society will open on November 15 with a paper by the president, Mr. Douglas W. Freshfield, on the southern frontiers of Austria. Among other papers to be read at evening meetings are:—The work of the Peru-Bolivia Boundary Commission, Sir Thomas H. Holdich; The geographical and ethnic position of the Slavs between the Adriatic and the Drave, Sir Arthur Evans; Cyrenaica, Prof. J. W. Gregory; The Troad

and the command of the Dardanelles, Dr. Walter Leaf; The valley of Mexico, A. P. Maudslay; and the Gold Coast, A. E. Kitson.

A REUTER message from Paris states that the French Minister of War has appointed a consulting committee of experts attached to the Under-Secretaryship of Military Aeronautics. Among other well-known names, the Committee, which is presided over by the Under-Secretary himself, includes M. Appell, who occupies one of the chairs of mechanics at the Sorbonne; M. Robert Esnault; M. Pelterie; M. Deslandres, director of the Meudon Observatory; M. Deutsch, president of the Aero Club; M. Renault; M. Clement Bayard; M. Eiffel; and M. Kling, director of the Municipal Observatory.

WE regret to notice that the *Engineer* for October 8 announces the death in action in France of Capt. W. McLeod Macmillan, of the 11th Argyll and Sutherland Highlanders. Capt. Macmillan was the chairman and managing director of the old-established ship-building firm of Archibald Macmillan and Son, Dumbarton, and was in his fortieth year. He was educated at Fettes College, Edinburgh, and succeeded his father in 1910. He acted for a period as chairman to the Clyde Shipbuilders' Association, and was a member of the council of the Institution of Engineers and Shipbuilders in Scotland.

At the recent International Congress of Mathematicians at Cambridge it was decided that the next congress should meet at Stockholm in 1916. The King of Sweden offered a gold medal with the likeness of Karl Weierstrass and a sum of 3000 crowns for an original important discovery in the domain of the theory of analytical functions. Competing manuscripts were to have been sent to the editor of *Acta Mathematica* before October 31 next, the centenary of the birth of Weierstrass. We are informed by Prof. Mittag-Leffler that in accordance with a widely expressed wish, the King of Sweden has decided, in view of the European war, to postpone the last day for the receipt of competing memoirs until October 31, 1916.

IT is announced in the *Pioneer Mail* that the third annual meeting of the Indian Science Congress will be held in Allahabad from January 13-15, 1916, when Sir Sidney Burrard, F.R.S., will be president. The chief sections will be physics, chemistry, zoology, botany, agriculture, and ethnology, and the presidents of the respective sections Dr. Simpson, of the Meteorological Department; Dr. Sudborough, of the Research Institute, Bangalore; Dr. Woodland, of Allahabad; Dr. Howard, of Pusa; Mr. Coventry, of Pusa; and Mr. Burn. It is hoped that the local committee will persuade Dr. Bose to give a public lecture on his own researches. The local secretaries for this year are Dr. Hill, of Muir College, and Mr. P. S. Macmahon, of the Canning College, Lucknow, to the latter of whom all communications should be addressed. The congress is under the general control of the Asiatic Society of Bengal.

WE announce with regret the death in action in Flanders on September 25 of Major A. J. N. Tre-