ions with appreciable intensity in positions of equivalent mis-setting. The 222 reflexion was examined in both possible diamond orientations ([$1\bar{1}0$] axis vertical) and no sign whatever was found of the detail that would correspond to intensity spikes along cube directions in reciprocal space (that is, of any effect geometrically analogous to the 111 streaks and triangles).

(2) The {220} planes, in all orientations, do give extra reflexions, both primary and secondary[5], which are at least half as intense as the 111 extra reflexions. We cannot understand Dr. Nilakantan's failure to find them.

(3) There are no reflexions of any kind from the (200) planes, of intensity comparable with that predicted, or even as much as 1 per cent of that value. We used both direct and monochromatized (copper $K\alpha$) radiation from a 5-kw. tube. In order to avoid all possible errors of setting, we took series of Laue photographs at 0·2° intervals, and also 1° and 5° oscillation photographs. Exposures varied from 5 seconds to 2 hours. Using X-radiation monochromatized by reflexion from the (001) plane of urea nitrate, a weak reflexion was observed in the 200 position; its intensity was about 0·01 of that of the 222 reflexion (exposures of one hour and 30 seconds were required to record the two with comparable intensities) and about 0·0003 of that of the 400 Bragg reflexion. It was certainly due to the 400 reflexion of wave-length $\lambda CuK\alpha/2$. Such 'unwanted' radiation is unavoidable in any monochromatized beam if the monochromatizing plane used has a second-order reflexion, and it sometimes amounts to as much as 1·6 per cent of the λ component[6]; for precise work it should always be estimated and allowed for. (Such a $\lambda/2$ component probably accounts for the doubtful 100 reflexion on a monochromatic photograph of sodium chloride, referred to by C. S. Venkateswaran[7].)

P. Rama Pisharoty and R. V. Subrahmanian[8] observe that the absence of the 111 extra reflexions (of the secondary kind) in type II diamonds[9] is due to the probable mosaic structure of these rare specimens. There are not, they suggest, sufficient cooperating planes in each block for the subsidiary phenomena to appear. In a reply to this suggestion it may be pointed out:

(1) That the 222 reflexion (which they have claimed to have the same origin as the 111 subsidiary reflexions) does appear quite strongly in type II diamonds. The larger value of the 111/222 intensity for such diamonds as compared with that for type I is due to the very much greater 111 intensity, not to a decrease in 222.

(2) That the secondary effects were observed so strongly, with our powerful X-ray equipment, for some type I diamonds, that had the effect for type II diamonds been even 0·01 as intense it would almost certainly have been found.

(3) That the temperature-sensitive diffuse spots (primary extra reflexions) which are certainly due to X-ray diffraction by elastic vibrations, appear equally strongly for both types of diamond. Yet according to Raman[10] and Venkateswaran[11], the relative diffraction effect due to elastic vibrations should, on their theory, vary proportionately to the size of the crystal block, whereas that due to the excited characteristic vibrations should not.

(4) That soft organic crystals and soft metals such as sodium and lead, which are undoubtedly mosaic in structure, show excellent extra reflexions.

Pisharoty and Subramanian suggest that in the diamond orientation we used ([$1\bar{1}0$] vertical), the [001] direction was tangential to the sphere of reflexion, thus accounting for the absence of extra reflexions along that direction for the (220) and (113) planes. A little consideration, however, shows that it was not. The [001] direction was more nearly normal to the sphere of reflexion than either [010] or [100] directions along which 220 extra reflexions *were* found, and only a little less so for the 113 reflexion. We thought it unnecessary in our former communications to stress the fact that the absence of extra reflexions along certain directions for some diamond planes is an intrinsic property of the diamonds and not an effect due to the geometry of the experiments.

Finally, we wish to point out, as an experimental fact proved beyond question[6], that the integrated intensity of a Bragg reflexion is *not* proportional to N^2 (N = number of lattice cells *in the crystal*) as Raman repeatedly implies[12], but to the volume of the crystal, that is, to N. Born's theory gives the integrated intensity of an extra reflexion as also proportional to N. In practice it is always integrated intensities that are compared.

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OBITUARIES

Dr. George Senter

THE death of Dr. George Senter on March 14 brings to a close an eventful life as man of science and administrator. Let us recall the main events of his history. Born in 1874 at Kildrummy, Aberdeenshire, he was educated at the Universities of London, Leipzig and Göttingen. He obtained his first teaching post in 1904 as lecturer on chemistry at St. Mary's Hospital Medical School, and became head of the Chemistry Department, Birkbeck College, London, in 1913. Five years later, when the outcome of the War of 1914–18 was in the balance, Senter became principal of the College and so inaugurated a period which must be regarded as one of the most important in the history of that institution.

Birkbeck College grew out of the London Mechanics' Institution—founded in 1823 with Dr. George Birkbeck as first president. The College still maintains the honourable and ancient association of poverty and scholarship in that it serves the student who has to pursue learning and earn his living at the same time. Senter was the type of administrator who sees possibilities rather than difficulties and dangers. He grasped boldly and imaginatively the opportunities before him, with the result that when he retired in 1939 the College had become a school of the University of London, and on a fine site in Bloomsbury, next to the Senate House of the University, the foundations of a new college building were laid. Senter had good cause for happiness in the outstanding success of his principalship. Besides guiding the internal affairs of the College, Senter took a prominent part in the larger world of the University. As an active member of the Senate his shrewd judgment was appreciated and his work on committees and boards earned him the respect and affection of his colleagues.

George Senter possessed one of the rarest and most precious of gifts in a man of science or administrator —the gift of lucid exposition. This he turned to good account in his well-known books, "Outlines of Physical Chemistry" and "Text-book of Inorganic Chemistry," which have delighted and helped a generation of chemists. In view of his fine record in administration there may be a tendency to forget his eminence as a man of science. Senter realized at an early date that kinetic investigations would be necessary for the satisfactory elucidation of the problems connected with the phenomenon of the Walden inversion. He carried out a number of pioneer investigations and had he been able to devote himself to this work there seems little doubt that results of great theoretical interest would have emerged. Actually this early work on chemical kinetics in which he was engaged when he became principal of Birkbeck College is now regarded as fundamental, and after some twenty years forms the basis of one of the most rapidly developing branches of physical chemistry.

Although Senter was a bachelor he was not a self-centred man. He had a true and understanding heart associated with a tolerant mind and a happy gift of humour. For relaxation he turned to the peace and joy of his garden and the countryside. In the minds of the hosts of his friends there will ever remain the remembrance of a shrewd and kindly man who had a sincere desire to serve his fellow-men.

W. Wardlaw.

Dr. J. G. Myers

John Golding Myers was born near Rugby in Warwickshire on October 22, 1897. In 1911 his parents moved to New Zealand. There he did brilliantly at school, winning a scholarship to Victoria University College, Wellington. During the War of 1914–18 he came to Europe with the New Zealand Expeditionary Force. Returning to Wellington he completed his studies and obtained the B.Sc. and M.Sc. degrees.

From 1919 until 1924 Myers was employed as entomologist in the Biological Division of the New Zealand Department of Agriculture, where he did excellent work on the cattle tick and other pests. In 1924 he won the coveted honour of an 1851 Exhibition Scholarship for New Zealand and elected to go to Harvard University. There he worked at the entomological laboratory of the Bussey Institution, eventually obtaining the degree of Sc.D. In 1925 Myers came to England to represent the New Zealand Government at the Second Imperial Entomological Conference. Afterwards he went to France at the request of his Government to study the natural enemies of the pear leaf-curling midge. In the following year he was appointed to the staff of the Imperial Institute of Entomology to organize the breeding of parasites of injurious insects for export to the Dominions and Colonies. He did splendid work on the parasites of the blow-fly and of the timber-infesting wood-wasps, which made possible their export to Australia and New Zealand. Myers next visited Australia to investigate the passage of dried fruit from the vine to the consumer and was successful in tracing the sources of insect infestation. In 1928 he went to Trinidad to study the possibilities of the biological control of sugar cane pests. He travelled all over the West Indies and to Guiana and Surinam in search of parasites, and his report, published by the Empire Marketing Board, is a mine of information not only on insect pests and their parasites but also on the general ecology and agriculture of the countries visited.

Myers' work in the West Indies continued up to 1934, when he joined the staff of the Imperial College of Tropical Agriculture in Trinidad. Here he undertook a number of private expeditions at the request of various planters, collecting and studying the ecology of insect pests in unknown parts of British Guiana, Venezuela and Brazil.

In 1937 Myers was appointed economic botanist to the Government of the Anglo-Egyptian Sudan, his task being to survey the economic possibilities of the southernmost province of Equatoria with a view to its future agricultural development. Only preliminary reports of this work are available, but they cover a great variety of subjects and show the usual thoroughness of his approach and the broadness of his vision. It was fated that this task should not be completed, for he was killed in a motor accident near Amadi, Equatoria Province, on February 3.

Apart from his many papers on biological control, and related topics, Myers produced a large number of works on Hemipterous insects which showed him to be a morphologist and systematist of the highest order. Myers' versatility, broad ecological outlook and great experience in many parts of the world made him the most outstanding economic entomologist of his generation. In his death at the early age of forty-four, applied biological science has lost one of its most brilliant investigators. He leaves a widow and two small daughters in British Guiana.

W. E. China.

Sir William Bragg

Qu'il me soit permis d'apporter un hommage français à la mémoire de Sir William Bragg, dont la mort, suivant de près celle de J. J. Thomson, endeuille aujourd'hui la science anglaise.

J'avais appris à connaître et à admirer l'œuvre de Sir William Bragg, il y a de nombreuses années, alors que je faisais mes premières armes de chercheur au laboratoire de Madame Curie. Son livre sur la Radioactivité avait une place d'honneur dans notre bibliothèque, et le volume, très usé, témoignait de l'utilité de l'ouvrage : il était toujours entre les mains de quelque chercheur ou de quelque étudiant.

J'ai eu l'honneur d'être reçu par Sir William Bragg lorsque je parvins en Grande Bretagne après m'être évadé de France, en juin 1940. Je n'oublierai jamais l'amabilité de son accueil, ni les paroles de sympathie, si directes et si profondément senties, qu'il prononça à l'égard de notre malheureux pays.

Je suis sûr d'être l'interprète de tous les hommes de science français, forcés au silence par leur situation, en priant Sir Lawrence Bragg et la Royal Society d'accepter leurs condoléances émues et le témoignage de leur profond attachement à la mémoire du grand disparu.

A Free French Scientist.