60

52

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STRUCTURE OF HYDROGEN SULPHIDE AND HYDROGEN SELENIDE

IN NATURE of Dec. 13, p. 916, Prof. L. Vegard communicates the results of the investigation of crystalline structure of hydrogen sulphide and selenide, which were made by him in the Physical Institute of Oslo and finished in July last, while his letter is dated Nov. 6.

I may be permitted to recall that I have already published two papers on the structure of these substances. These papers were presented to the R. Accademia dei Lincei in Rome at the meetings of Mar. 2 and April 6, 1930, and published in Fasc. 7 and 8 of vol. 11, 1st sem., pp. 679-684, 749-754. Abstracts appeared in NATURE of Sept. 6, p. 387, and Sept. 27, p. 495.

The data generally agree with those given by Vegard, as for both substances we found a cubic lattice, with face-centred distribution for sulphur and selenium atoms. For the side of the cell (a) and density of hydrogen sulphide our values are also very similar: $a = 5{\cdot}778$ A. (N.), 5·76 A. (V.); density = 1·166 (N.), 1·17 (V.). For hydrogen selenide there is a certain quantitative difference: $a = 6{\cdot}020$ A. (N.), 6·10 A. (V.); density = 3·45 (N.), 2·34 (V.), as to the cause of which I cannot for the moment decide, and which I shall investigate further.

For the distribution of the hydrogen atoms and the structure of the whole lattice, Vegard considers as most probable space groups T^4 or T_2^6. Considering both substances as ionic compounds, I regard as most probable the space group Oh^5, that is, a fluorite type, which is shown also by lithium sulphide (Claassen, *Rec. Trav. Chim. Pays Bas*, **44**, p. 790; 1925).

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