cal interest in this study has been that, treatment with Gibberellic acid has given maximum germination values even for seeds stored under ordinary conditions, as the results of the previous investigations on mulberry seed storage in this laboratory[8] had indicated considerable loss in viability with increasing periods of storage. In the previous investigations[8] the maximum percentage of germination was recorded for fresh seeds sown with pulp and very low values were obtained for stored seeds. In the present study, even the seeds stored for a period of three months have given the maximum germination value of 94% with the 50 ppm Gibberellic acid treatment. This is a pointer to the advantage of the Gibberellic acid treatment in getting better germination values with stored seeds. Another special point of note is that the response to Gibberellic acid treatment is more significant in seed treatment as compared to the shoot-bud treatment by spray, the results of which are elaborated in another paper under communication.

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ON THE REGULARITY OF THE TETRAHEDRA IN QUARTZ

ON the basis of extensive structural studies, it has been practically taken for granted that in quartz as well as in the other silica phases the SiO_4 tetrahedra are strictly regular; that any of the observed small deviations from regularity was simply the result of experimental errors in the diffraction data. However, two recent refinements on α-quartz, the first by Young and Post (YP) in 1962, and the second by Smith and Alexander (SA) in 1963,—have yielded bond data which seem to suggest a rethinking in this regard. While some of the bond data presented by them are consistent with the regular configuration, the deviations from regularity shown by others are large enough to be statistically significant, as for example :

S and A : Si—O 1·617 Å ; 1·597 Å.
∠ Si—O—Si 144·0°
Y and P : Si—O 1·611 Å ; 1·603 Å.
∠ Si—O—Si 143·9°

The existence of regular tetrahedra in quartz introduces relationships between the size of the tetrahedra and the unit cell dimensions ; and from the temperature dependence of the unit cell dimensions some definite conclusions can be drawn concerning the regularity of the tetrahedra at a number of temperatures.

Gordon S. Smith (*Acta Cryst.*, 1963, 16, 542) from analysis based on symmetry considerations has derived the conditions under which the SiO_4 tetrahedra in quartz can be strictly regular. According to him for such a configuration the Si—O bond distance in α-quartz must be $[\sqrt{(3)}\, a - c]/2$, and c/a must be $< 3/2\,[\sqrt{(3)} - 1]$; in β-quartz the axial ratio must be $(3/2)\,[\sqrt{(3)} - 1]$.

Comparison of his deductions with published data on lattice constants, shows that in the vicinity of room temperature regular SiO_4 tetrahedra are not possible in α-quartz, or in β-quartz. Hence the deviations from regularity reported by SA and YP in α-quartz must be regarded as real. It is suggested that α-quartz at 25° C. be considered to have two different types of Si—O bond lengths, namely, $1\cdot600 \pm 0\cdot003$ Å, and $1\cdot614 \pm 0\cdot003$ Å.