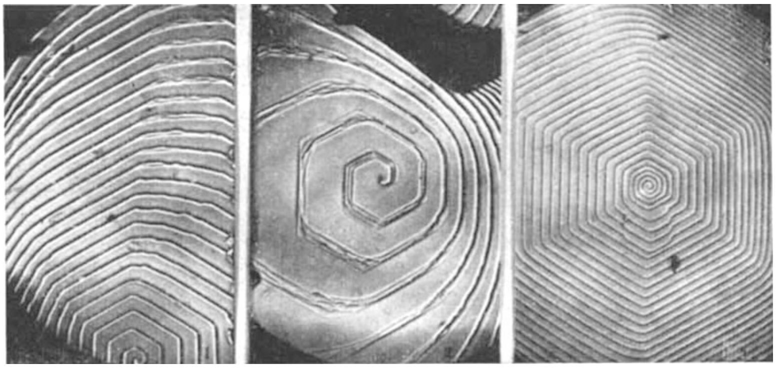

(1) (2) (3)

On a type VI crystal (33*R* in Ramsdell's notation), the measured step-height is 28 ± 2 A., which again is very close to a_{rh} of the rhombohedral cell, and within experimental error is identical with it.

Fig. 3 shows a hexagonal spiral with step-height nearly 130 A., and it may be concluded that it is one of the types with giant unit cells. If a_{rh} is indeed equal to the step-height of 130 A., then the classification is probably 159*R*.

Thus, it seems established that the step-height is equal to the height of the actual unit cell. This gives another physical confirmation of the existence of the X-ray unit cell.

I wish to express my thanks to Prof. S. Tolansky for his interest in the work, and to the British Council for the award of a scholarship.

AJIT RAM VERMA

Royal Holloway College,
(University of London),
Englefield Green,
Surrey. June 21.

[1] Verma, A. R., *Nature*, **167**, 939 (1951).
[2] Ramsdell, L. S., *Amer. Min.*, **32**, 64 (1947).

Growth Mechanism of Carborundum Crystals

GROWTH spirals, as predicted by F. C. Frank's theory[1] on crystal growth, have been observed on the *c*(0001) faces of carborundum by Ajit Ram Verma[2] and by S. Amelinckx[3]. The steps between successive turns, as stated by Frank, are exactly one unit cell high. This seems, in fact, to be true in many cases, although steps of several unit cells high are not exceptions.

We now have evidence that layers thinner than one unit cell are formed in certain circumstances.

The photograph reproduced herewith shows a growth pattern on a *c*(0001) face of a carborundum crystal. The technique of observation was the same as the one used previously. By means of Weissenberg photographs about an α-axis, we found the crystal to be of the type 6*H* (formerly type II)[4]. The structure of this type of carborundum can be considered as being made up of superimposed three-layered lamellæ, each lamella rotated 180° to that immediately below it[5]. The unit cell contains two such lamellæ, and each of them has trigonal symmetry about the *c*-axis.

The accompanying photograph shows a double growth-spiral. The two components are generated by the same dislocation end; both have trigonal symmetry as shown by their radial growth-velocity, but their orientation differs by 180°. This shows that two successive sheets are not equivalent.

The average height of a step between successive loops of the spiral was measured by means of multiple beam interferometry[6] and found to be 7 ± 2 A., that is, the height of one three-layered lamella (or half a unit cell).

The most logical interpretation of this pattern would appear to be that these two spirals are due to the growth of each lamella separately. Consequently carborundum crystals (of type 6*H*) seem to grow, at least in certain circumstances, not by unit cells but by three-layered lamellæ. Probably similar conclusions will hold for the growth of the other types of silicon carbide; they could provide a basis for the explanation of the existence of the numerous types of carborundum which are known.

A more detailed account of this work is being published elsewhere.

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S. AMELINCKX

Crystallographic Laboratory,
Geological Institute,
University of Ghent. July 15.

[1] Frank, F. C., Farad. Soc. Discuss. Crystal Growth, No. 5 (1949).
[2] Ajit Ram Verma, *Nature*, **167**, 939 (1951).
[3] Amelinckx, S., *Nature*, **167**, 940 (1951).
[4] Ramsdell, L. S., *Amer. Min.*, **32**, 64 (1947).
[5] Lundquist, D., *Acta Chem. Scand.*, **2**, 177 (1948).
[6] Tolansky, S., "Multiple Beam Interferometry of Surfaces and Films" (Oxford Univ. Press, 1948).

Crystal Structure of Ergine

ERGINE, $C_{16}H_{17}ON_3$, the amide of lysergic acid, is the simplest of the ergot alkaloids. It forms salts with hydrochloric and hydrobromic acids, and crystals of these were kindly put at our disposal by Prof. A. Stoll, of Basle. Both salts crystallize in elongated colourless plates, which are optically