centimetres on the grating side of the slit. The path length available for absorption is thus of the order of three centimetres. It seems certain that a very small quantity of hydrogen is sufficient to produce the reversal of the lines. THEODORE LYMAN.

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June 29.

Plastic Deformation of Single Metallic Crystals.

IN a letter to NATURE (May 22, 1926, p. 720), Messrs. W. E. Millington and F. C. Thompson have proposed a formula for the angle of a uniform wedge formed by the fracture of a single metallic crystal, which purports to be more general than that given by the writer in connexion with the fracture of tungsten single crystals (*Phil. Mag.*, Aug. and Nov. 1924). By the use of this formula they consider it "possible to extract from the experimental results obtained on these single crystals of tungsten information with regard to the distance through which the atoms move and the number of planes involved which has hitherto remained unrealised."

The writer would like to point out that the use of their formula presupposes a type of slip which is inconsistent with experimental fact and that consequently it is inapplicable as a theory of wedge formation.

They have assumed that slip takes place on two sets of planes equally inclined to the specimen axis, and that the wedge angle depends only on the extent of slip per plane and the distance apart of the slipping planes. It has been shown, however, that a minimum extension of the crystal is required in such a case if fracture is to take place (*Phil. Mag.*, pp. 234-235, Aug. 1924), from which it follows that a definite wedge angle (39° approx.) must result if the two halves of the divided crystal are symmetrical; and further, that if a wedge were formed in one half of the crystal with an angle greater than 39°, a wedge having an angle less than 39° must be formed in the other half. Such unlike wedges are not found by experiment; either the wedge angles were both 39° or both were greater than 50°.

The explanation of the 39° wedges is based on a purely geometrical argument and tells us nothing about the extent of slip per plane or the distance apart of the slipping planes other than that on the average they give the theoretical wedge form. The explanation of the large wedge angles given by the writer, although it may not be entirely satisfactory, was at least based on the experimental fact that they were always associated with crystals asymmetrically inclined to the specimen axis—a case which Messrs. Millington and Thompson did not consider.

F. S. GOUCHER.

New York City, June 30.

Use of Pith Dust in Kundt's Tubes.

DURING the summer of 1924, while experimenting at Indiana University with a Kundt's tube, I discovered that the striæ could be most readily observed by using pith dust in the tube. I obtained the pith dust by grinding dry pith from sunflower on a fine-grained emery wheel. By the use of this dust I was able to obtain discs that extended completely across the tube and having the same diameter as the inside of the tube.

These striæ were obtained by the ordinary method used with a Kundt's tube, but for demonstration purposes I found the following to be an excellent way to produce them: Some pith dust was placed in a glass tube of any convenient length and diameter. In one end of the tube a stopper was placed and the open end of the tube was inserted in the open end of a sounding organ pipe. When the tube was inserted the proper distance the striæ formed at regularly spaced intervals and showed the nodes and loops in an excellent way. Discs apparently but one particle in thickness were formed, and when the tube was carefully adjusted with regard to the distance to which it was inserted into the organ pipe, the separate particles remained almost motionless. Often they wove themselves into thin sheets, and when the air was turned off they fell over, maintaining the sheet form.

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The Ancestral Third Claw of a Spider: *Clubiona interjecta.*

THE accompanying photomicrograph (Fig. 1) shows a leg of a young spider of the species *Clubiona interjecta* Koch, before its escape from the egg-cocoon. Adults of the family Clubionidæ possess two tarsal claws, but on the tarsi of the spiderling the median, third, claw is present, demonstrating the fact that the possession of three claws is the ancestral condition. All web-spinning spiders have retained the

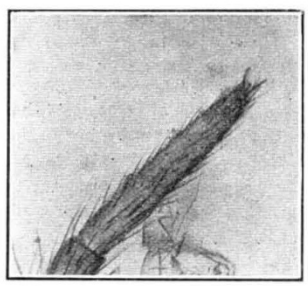

FIG. 1.—Leg of young spider, *Clubiona interjecta* Koch.

third claw, while many hunting spiders lose it when very young.

I have referred to this fact in a recent paper on "Evolution in Spiders" (*Science Progress*, Jan. 1926, pp. 475-480), but I believe that this photomicrograph is the only published illustration in support of my statement. For the photography, I am indebted to my friend and colleague, Mr. R. W. Barney.

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Egyptian History.

HISTORICAL truth compels me to remark that it is inexact to say that the dating by the Egyptians is only "*modern* calculations" (NATURE, June 5, p. 788). All three ancient versions of the lists of kings named by Manetho also state the totals of each of the three great periods; excepting the last, which is not in dispute, only named in one version. These totals count up to Alexander. Where these lists can be checked by external sources they show that overlapping periods of rule were eliminated. It is quite impossible to discuss the details here, but at least the facts justify my statement of the Egyptian reckoning. FLINDERS PETRIE.