concentration of acetone below the point which Allard[1] showed was non-toxic to the virus.

Absolute alcohol may be used in place of acetone under the above-mentioned conditions.

At about 100 per cent. saturation and $-8°$ C. ammonium sulfate salts out from the juice, material which, when filtered off and sucked dry, dissolves readily in distilled water. Plants when inoculated with this solution take the disease. The filtrate when diluted, one to five, has in no case transmitted the disease; although the untreated juice when containing ammonium sulfate solution at a concentration of 3 cc. of a saturated solution to 10 cc. of the juice is infectious.

Solutions of Safranin-O have also been used to precipitate the virus from the plant juice. This gives a quantitative precipitation, which frees the juice of virus.

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BROWNIAN MOVEMENTS WITH LOW MAGNIFICATION

THE desire having arisen for conspicuous Brownian movements, a variety of materials was pulverized with a view to ascertaining which showed the movements to best advantage. For several reasons mica, particularly in the form of muscovite, was found preferable.

The suspension to be observed may be prepared as follows. A quantity of mica from the edge of a natural slab is ground by a dry emery wheel into an impalpable dust. This is stirred into a graduate of water and allowed to stand for some four hours. After the larger flakes have settled to the bottom, the thin milky suspension is siphoned off, care being taken not to draw off any of the useless residue at the same time. The concentration of the liquid may, of course, be altered as seems convenient by evaporation or dilution.

The liquid so prepared contains particles most of which are so small as to exhibit the Brownian movements. Under a magnification of fifty diameters with oblique illumination from below the microscope stage, the flakes appear as bright scintillating points in a dark field. This scintillation is evidently caused by small angular displacements due to the atomic bombardment; as the flakes rotate, they reflect the light at irregular intervals. Mica is peculiarly well adapted to this method of observation because each thin particle has a moment of inertia small in comparison with its reflecting area.

In such a field, the movements are still conspicuous with a magnification of ten diameters, and have been suspected with the naked eye.

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SPECIAL ARTICLES

HYSTERESIS LOSS IN NICKEL OF DIFFERENT GRAIN-SIZE

THE hysteresis loss in specimens of nickel crystals, which varied from one grain per specimen to as high as 2.8×10^6, has been examined by Sucksmith and Potter[1] and found to increase rapidly as the number of crystal grains increased. Such an effect is not limited to specimens specially prepared as crystals, but may be found as well in strips of ordinary nickel which have been successively cold rolled to thinner and thinner specimens and thus the number of crystals per unit volume increased step by step as well as the hardness.

Of course all metals are crystalline, but in the case of the nickel strips which are cold rolled, it is not until severe cold working is performed that the crystals are more or less aligned[2] in one direction.

The present writer had occasion recently to study some of the magnetic properties of a series of eleven nickel strips reduced to various thicknesses by successive cold rolling. These strips were 57.7 cm. long and about 0.954 cm. wide. The thickest strip was .604 cm. in thickness and the ten succeeding strips were rolled from this thickness to those given by the percentage cold reduction in the following table:

No. of Strip	Per cent. cold reduction from mill records	Hysteresis loss Ergs/cm³/cycle	Thickness	Chemical Analysis	
1	0.0	10861	0.604	Nickel	98.88
2	9.7	26146	0.550	Iron	0.56
3	18.9	29165	0.496	Manganese	0.23
4	28.6	30538	0.435	Copper	0.16
5	39.5	37526	0.372	Carbon	0.09
6	50.0	38732	0.306	Silicon	0.06
7	59.5	42373	0.249	Sulphur	0.008
8	69.0	43924	0.194		
9	79.0	51086	0.133		
10	89.1	55144	0.070		
11	93.3	55042	0.044		

[1] Allard, H. A. *Jour. Agr. Res.* 13: p. 619 (1918).

[1] Sucksmith and Potter, *Nature*, 118, p. 730, Nov. 20, 1926.

[2] Jeffries, *Trans. Amer. Inst. Min. & Met. Eng.*, 70, p. 303, 1924.