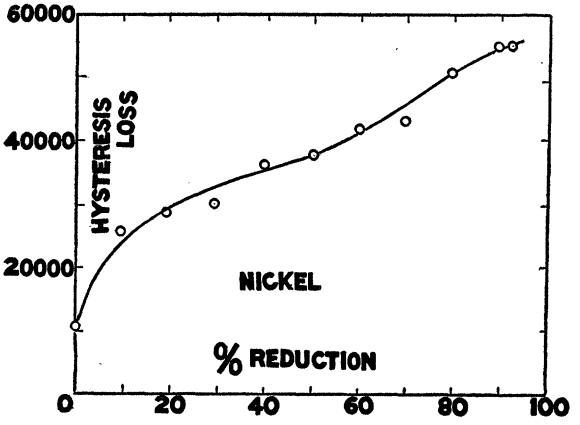
The photomicrographs[3] of these strips show a much finer grain structure for the specimens having the greater reduction in thickness and thus we assume that the per cent. of cold reduction is some measure of the number of crystal grains per unit volume even though with random orientation. We may, therefore, plot the relation between per cent. of cold reduction



and hysteresis loss. This is shown in Fig. 1 and confirms the relation found by others that large grain size is conducive to small hysteresis loss. Honda and Kaya[4] in a recent study of the magnetic properties of single crystals of iron find a similar law holding in their work. The same conclusion may be drawn from Gerlach's[5] curves for the magnetization of single iron crystals and electrolytic specimens. Sorensen[6] ascribed the high coercive force in thin films of iron, cobalt and nickel as due to the minute size of the crystals. Edwards[7] had a similar experience. The recent work of Ishagaki[8] on the effect of grain-size on the hardness of pure iron fits into the same picture.

It is interesting to note, on the other hand, that Welo and Baudisch[9] found for precipitated magnetite that "lean hysteresis loops, low coercitivities and low remanences are associated with oxides composed of small crystals."

S. R. WILLIAMS
FAYERWEATHER LABORATORY OF PHYSICS,
AMHERST COLLEGE, AMHERST, MASS.

[3] Williams, *Proc. A. S. S. T.*, 1926.

[4] Honda and Kaya, *Sci. Reps.* Tohoku Imp. Univ., 15, p. 729, Nov., 1926.

[5] Gerlach, *Ztschr. f. Phys.*, 38, p. 832, 1926.

[6] Sorensen, Amer. Phys. Soc. Program, Abstract, Nov. 28–29, 1924, *Phys. Rev.*, 24, p. 658, 1924.

[7] Edwards, Amer. Phys. Soc. Program Abstract, Dec. 28–30, 1925.

[8] Ishagaki, *Sci. Reps.*, Tohoku Imp. Univ., 16, p. 285, 1927.

[9] Welo and Baudisch, Amer. Phys. Program, Abstract, Feb. 26–27, 1926.

A DYSENTERY-LIKE BACILLUS FROM A PHLEGMONOUS INFLAMMATION

THE bacilli belonging to the dysentery group have with few exceptions been isolated from the intestinal and urinary tracts. The writer has found but one reference to the isolation of one of this group from an extremity. Magnusson, 1919,[1] isolated a dysentery bacillus, which he named *Bacterium viscosum equi,* from "joint ill" in foals. Since the bacillus to be described was isolated from a phlegmonous inflammation of the lower leg and foot of a man, it will, perhaps, be of interest.

The isolated bacillus has the following characteristics:

Non-motile, Gram-negative, non-spore-forming, short rods.

Aerobic and facultative anaerobic.

Gelatin colonies: grayish-white, raised, entire.

Gelatin stab: no liquefaction.

Agar colonies: gray, smooth, entire.

Agar slant: gray, smooth, glistening.

Broth: turbid.

Milk: acid. Slow coagulation.

Indol is formed.

Acetyl-methyl-carbinol not formed.

Nitrates not reduced.

H_2S not formed.

Acid, but not gas, in lactose, saccharose, mannite, dextrose, maltose, raffinose, arabinose, adonite, sorbite, galactose, levulose, salicin, glycerin, xylose and trehalose.

No acid or gas in dulcite, dextrin, inulin, inosite, amygdalin or rhamnose.

Andrewes, 1918,[2] proposed the name *Bacillus dispar* for all lactose-fermenting members of the dysentery group, but *Bacillus madampensis* Castellani, 1912, and *Bacillus ceylonensis* Castellani, 1909, were evidently included in the group as shown by the reaction of the strains of *B. dispar* to dulcite.

The bacillus herein described differs from *B. madampensis* in that it ferments adonite and salicin, and does not ferment dextrin nor rhamnose. The nonfermentation of dulcite differentiates the bacillus from *B. ceylonensis.*

FREDERICK W. SHAW
MEDICAL COLLEGE OF VIRGINIA,
RICHMOND

THE SELECTIVE EFFECT OF POLARIZED RADIATIONS ON CERTAIN PHOTOCHEMICAL REACTIONS

THE selective effects of polarized light as compared with ordinary light on biochemical reactions

[1] *Jour. Comp. Path. and Therap.*, 32, 143.

[2] *Lancet*, 1918, 1, 560.