time, efforts are being concentrated on imparting to galvanometer (I) the great stability which is essential to high amplification.

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DECEMBER 28, 1928

HALL EFFECT IN SINGLE METAL CRYSTAL

IN SCIENCE for August 24, 1928, a report on measurements of the Hall Effect in single crystals of silicon steel stated that no change in this effect with change in crystal orientation had been found. It was further stated that such changes probably should not be expected in metals following the cubic lattice structure but might be expected in some other structure. Recently measurements have been made on a large zinc crystal of the close packed hexagonal system and the Hall Effect was found to be about 50 per cent. larger in the single crystalline portion than in the polycrystalline portion.

P. I. WOLD
DECEMBER 12, 1928

DISSOCIATION OF NEUTRAL VACCINE VIRUS–IMMUNE SERUM MIXTURES

IT has been shown that the mixture of a virus and its specific anti-serum which is innocuous when introduced into the animal organism becomes disease-producing after dilution with appropriate amounts of Ringer's solution.[1, 2] Certain aspects of this reaction have led us to conclude that the dilution phenomenon resembles the hydrolysis of the salt of a weak acid and weak base, and that the observed dissociation probably follows the law of mass action. This is indicated by results obtained from qualitative studies of the degree of dissociation following dilution of neutral and over-neutralized mixtures of vaccine virus and immune serum, from cataphoresis experiments, and from the observation that the dissociation is reversible.

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PRICKLY PEAR WORK

IN SCIENCE for September 14, page 241, there is a reference to a paper contributed by Dr. R. J. Tillyard to the Fourth International Congress of Entomology. This appears to imply that the work on entomological control of prickly pear in Australia has been carried out by Dr. Tillyard himself, though I am sure that he had no intention of conveying such an idea when presenting his paper.

As the prickly pear work in Queensland is attracting considerable attention and promises to be highly successful, it might be worth while just briefly to place on record the history of its control.

The first step was taken in 1912 when, at the instance of the Queensland government, Dr. T. Harvey Johnston and Mr. Henry Tryon spent eighteen months visiting various parts of the world where prickly pears exist, investigating the natural enemies of the plant. As a result the Indian cochineal was introduced and rapidly destroyed the smooth tree pear, *Opuntia monacantha,* in the districts where it occurred. The pest pears (*inermis* and *stricta*) were least affected. In 1919 the governments of the Commonwealth, New South Wales and Queensland entered into a cooperative agreement and for five years carried out experiments to determine thoroughly the possibilities of biological control. The Commonwealth Prickly Pear Board was constituted in 1920 to undertake the work, and the agreement between the three governments was renewed in 1925 and again two years later. It expires on May 31, 1930. The present members of the board are: Mr. F. D. Power, chairman of the Queensland Prickly Pear Commission; Mr. G. D. Ross, under secretary for agriculture, New South Wales; Mr. Gerald Lightfoot and Professor E. J. Goddard, representing the Commonwealth Council for Scientific and Industrial Research. The annual vote available to the board has recently been increased, and now amounts to £18,000 per annum, of which the Commonwealth provides half.

The scientific work was under the control of Professor T. Harvey Johnston from the inception of the board to February, 1923; of Mr. J. C. Hamlin from then to May, 1924; of Mr. W. B. Alexander from that date to August, 1925, while Mr. Alan P. Dodd has been in charge since October, 1925. Biologists are at work both in North and South America, and in Australia there is a central receiving laboratory and quarantine station near Brisbane and breeding and acclimatizing stations elsewhere in Queensland and New South Wales. The scope of the work includes:

(a) The study of all prickly pear insects in their native country.
(b) The breeding of material free from parasites and predators.
(c) The testing of these insects against crops and other plants.
(d) The forwarding of selected kinds of insects to Australia.
(e) Their breeding and acclimatizing under local conditions.
(f) Their establishment in the open at various localities on our several pest pears.

Numerous insects have been introduced, of which by far the most successful to date is *Cactoblastis cac-*

[1] Todd, C., *Brit. Jour. Exp. Path.*, 1928, ix, 244.
[2] Andrewes, C. H., *Jour. Path. and Bact.*, 1928, xxxi, 671.