

Proceedings of the American Physical Society

MEETING OF THE NEW ENGLAND SECTION HELD AT BOSTON, MASSACHUSETTS ON APRIL 15, 1944

THE twenty-third regular meeting of the New England Section of the American Physical Society was held at Simmons College, Boston, Massachusetts, on Saturday, April 15, 1944. Forty-four members were in attendance. The invited papers were as follows:

The Review of the Papers Given at the January 14-15 Meeting of the American Association of Physics Teachers at Columbia University. Given by LOUISA BILLINGS and LILLY LORENTZ, *Smith College*, and MILDRED ALLEN, *Mount Holyoke College*.

Physics at Simmons College. JAMES M. HYATT, *Simmons College*.

Echo-Sounding by Flying Bats. DONALD R. GRIFFIN, *Fatigue Laboratory, Harvard University*.

Opportunities in and Training for Industrial Optics. ALLAN E. PARKER, *Worcester Polytechnic Institute*.

Some Reflections on the Relation of Mathematics and Physics. R. B. LINDSAY, *Brown University*.

In addition the following short research paper was presented.

MILDRED ALLEN
Secretary-Treasurer

Magneto-Current Phenomena in Nickel. HENRY A. PERKINS, *Trinity College*.—Two experiments on related magneto-current effects in a nickel bar may be outlined as follows. In one of these a bored-out bar was used and the effect on residual magnetism, caused by a current sent through the metal during the process of demagnetization, was compared with that caused by a current flowing through a wire run through the hollow center of the cylindrical bar. When the current in the nickel was stopped after the magnetizing field had been reduced to zero, there was an abrupt decrease in the residual flux, but this decrease was much larger when the sense of the current was in opposition to that of the flux than when with it. This suggests that in one direction the current favors the magnetic state more than it does when in the opposite direction. When the same current flows along the axis and not through the metal, there is about the same change of flux

caused by breaking it, but a much smaller alteration in this change when the current's direction is reversed.

To see if any difference due to reversing the current exists in the often observed magneto-resistance phenomenon, a slender nickel bar, donated (like the one above) by the International Nickel Company, was tested in a Kelvin double bridge. Its resistance was measured when unmagnetized, and then when magnetized to a strength of 1900 gauss. The proportional increase $\Delta R/R$ due to magnetization was about 0.6 percent, but no difference could be detected when either the field or the current was reversed. However, an alternating 60-cycle field, of about the same intensity as before, produced a *decrease* in $\Delta R/R$ of an even greater magnitude. This was so marked that it easily overcame the increase of resistance due to heating when the field was applied, although this increase was fairly large. When iron was substituted for nickel, neither of the above effects could be observed with any certainty.

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MEETING OF THE SOUTHEASTERN SECTION HELD AT ATLANTA, GEORGIA ON MAY 5 AND 6, 1944

THE tenth annual meeting of the Southeastern Section of the American Physical Society was held in the Atlanta Biltmore Hotel and at the Georgia School of Technology, Atlanta, Georgia, on Friday and Saturday, May 5-6, 1944. Approximately sixty-five members and guests attended the meeting. Local arrangements were made by a committee headed by J. H. Howey.

The regular program consisted of eight papers, abstracts for five of which are appended hereto. Abstracts of the other papers will be found in the August, 1944 issue of the *American Journal of Physics*.

Additional features of the program were a talk by H. T. Briscoe of the Manpower Commission's Professional and Technical Division of the Bureau of Training, on "Manpower problems in