rent in the magnetizing coil. To obtain such a curve, a coil, wound on a thin rectangular bobbin which could be slipped into the air gap of the electromagnet, was connected to a ballistic galvanometer. The deflections of the galvanometer when the coil is quickly withdrawn from the air gap being proportional to f, the required curve can be obtained by using such deflections and the corresponding magnetizing currents as coordinates.

The curve obtained will depend on the magnetic history of the ring. If the curve is to be of any use, the initial condition of the iron must be one that can be reproduced. The ring may be entirely demagnetized initially or it may be in the condition in which it is left when a certain fixed magnetizing current has been passed through it. This current should be large enough to magnetize the core quite strongly.

Another curve can be plotted showing the relation between the magnetizing current and the force on the conductor, the current in the conductor and the length of the conductor being constant. If these two curves be plotted to the same axes, it will readily appear that the force is proportional to the intensity of the field.

The results which I have obtained from these curves for the ratio of the field to the force show a larger variation than do the ratios found in Tables I. and II., but with ordinary care the ratio of corresponding ordinates on the two curves will not vary more than three per cent. This seems to be about as great accuracy as may be expected with the apparatus in this present form. The larger part of the error is undoubtedly due to the uncertain variations in the magnetic field.

The apparatus as here described was designed for the use of students of general physics. Its special advantage is the directness with which the force is obtained in terms of quantities already familiar to the student.

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Syracuse University,
March 5, 1907

QUOTATIONS

THE NEW ENGLAND COLLEGE

Some of the New England college presidents are practically facing the question whether they should not voluntarily limit the number of their students. Within the last ten years, Dartmouth, for example, has nearly doubled in size—an increase due largely to the success of its professional and technical departments. President Hopkins of Williams favors the idea of limitation in the smaller colleges; and there is much to be said for his view, provided that the income of the corporation is sufficient to support an efficient faculty. In colleges like Amherst, Bowdoin, and Williams a first-class education can now be had, even as at the large universities. But there comes a point in the development of a college when the increase in students entails an expenditure out of proportion to the gains by tuition fees. The number of instructors has to be multiplied, and there must be a greater outlay for lecture-rooms and laboratories. Many of the smaller colleges would be helped if the craze for mere numbers could be checked. The energies of the professors could then be concentrated on the instruction of their relatively small classes, they could insist on a higher standard of scholarship, and possibly make the B.A. mean as much as a degree in technology.—*The N. Y. Evening Post.*

NOTES ON ORGANIC CHEMISTRY

ANHYDROUS SULPHOCYANIC ACID

Although numerous salts of sulphocyanic (thiocyanic) acid, HSCN, are known, and some of them are of considerable technical importance, the free acid has, hitherto, never been obtained in a state of purity. Wöhler believed that he had prepared it and Liebig stated that it decomposed with extreme ease. In 1887 P. Klason distilled the aqueous acid and passed the vapor over calcium chloride, heated to 40°, the unabsorbed material was condensed at a low temperature and was thought to consist of the anhydrous sulphocyanic acid, but A. Rosenheim and R. Levy[1] have recently shown that although Klason's

[1] *Ber. d. chem. Ges.*, **40**, 2166 (1907).

preparations occasionally contained as much as 40–50 per cent. of the acid, the remainder consisted of liquefied hydrogen sulphide, sulphur dioxide, carbon disulphide and hydrogen cyanide. The two chemists mentioned give the following description of the preparation of the chemically pure acid: Powdered potassium sulphocyanate, which has been fused until free from water, is mixed with an equal weight of phosphorus pentoxide in a distillation flask, connected with a receiver which is cooled in a mixture of ice and salt. The air in the flask is displaced by purified hydrogen under 40–60 mm. pressure. Concentrated sulphuric acid is now added gradually to the mixture in the flask, which is immersed in ice-water. The pure sulphocyanic acid collects in the receiver as a mass of white, dry crystals. At 0° it may be retained several hours in a closed vessel. It melts about 5°, and the liquid, in a few minutes, becomes deep red and then quickly solidifies, forming slender yellow needles; heat is evolved simultaneously. At 0° the acid dissolves in water almost without decomposition, but at the ordinary temperature polymerization products are formed. The acid has a sharp caustic odor and it rapidly attacks the skin.

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GEOLOGIC WORK ON THE COASTAL PLAIN

THE active cooperation of the States of the Atlantic and Gulf coasts, from the mouth of the Potomac to the Mississippi is enlisted in an investigation for which preparations are under way at the United States Geological Survey.

A systematic study is to be made of the age, character, and general relations of the rocks of the Coastal Plain, special effort being made to determine the position and extent of beds of economic interest, including water-bearing beds, phosphate deposits, fuller's earth, and other materials.

The general plan of the investigation was formulated at Washington on the first of January, 1907, at a conference invited by the Director of the National Survey and participated in by state geologists Kummel of New Jersey, Clark of Maryland, Watson of Virginia, Pratt of North Carolina, Yeates of Georgia, Smith of Alabama, and Crider of Mississippi, the heads of the survey's geologic and water resources branches, and M. L. Fuller and T. W. Stanton, also of the National organization.

At this conference the work that had already been done was discussed and arrangements were made for one of the most extensive cooperative investigations ever undertaken by the Geological Survey. The discussion brought out the fact that the work in New Jersey and Maryland had been completed under the auspices of the states, while that in Alabama is far advanced. The Geological Surveys of North Carolina, Georgia, Alabama and Mississippi have also done considerable work in the Coastal Plain region, and reports on the water resources of Georgia and Alabama have been published by the state bureaus. The work of the National Survey in this area has been confined to investigations of underground water problems in Virginia and North Carolina and to studies of the phosphate deposits of Florida.

If present plans are carried out field work in Virginia, North Carolina, South Carolina, and Florida will be completed during 1907, and that in Georgia, Alabama and Mississippi will be reserved for 1908. It is expected that the entire investigation will be completed and a final report submitted for publication in 1909.

General supervision of the work rests with a board of which W. B. Clark, of the Maryland Survey, is chairman and which includes the chiefs of the geologic and water resources branches of the National Survey and the state geologists of the interested states. The field work, which will be directed by M. L. Fuller, will be done chiefly by members of the United States Geological Survey, but state representatives will also be employed in North Carolina, Georgia, Alabama and Mississippi. The necessary paleontologic work will be directed by T. W. Stanton.