by careful investigation, they are disputed by some, and have not yet been applied in commercial testing."

Apparently the author is not familiar with the critical examination of the investigations above referred to, nor with the facts brought out in the recent trial of American sugar importers against the United States government. In that suit government officers in charge of the polarization of sugar imported into New York testified under oath that the application of the so-called corrections made to counteract the alleged influence of temperature on the specific rotation of sucrose, caused the polariscopic test in 30 per cent. or more of the foreign sugars imported in New York, to run over 100 per cent.—the excess amounting to as much as 0.3 or 0.4 of one per cent. In other words, *apparently,* fully one third of all sugar imported into New York is not only chemically pure, but more than chemically pure!

A defect noted in some parts of the book is the lack of logical arrangement of the topics discussed. There is no apparent reason why the notes applying to special instruments (pp. 68–86) should not have been incorporated with or placed in immediate sequence to pages 15–38, on which the author discusses polariscopes.

As the text stands, some thirty-seven pages of discussion on the accuracy of saccharimeter measurements and notes on apparatus and laboratory manipulations, intervene between the description of one type of half-shade saccharimeter—that of Peters, and that of another half-shade saccharimeter—that of Schmidt and Haensch.

It is also questionable whether the joint treatment of technological processes—in sugar-houses, refineries and glucose factories—and of analytical methods used in the control of those processes, is the most advantageous way of presenting the topics.

The book is written in good style, the descriptions of methods and manipulations are concise, yet sufficiently explicit. The tables given are those usually found in books of this description and the bibliography appended cites the more important works of reference. The make-up of the volume—paper, type and print—is entirely satisfactory.

F. G. Wiechmann.

SCIENTIFIC JOURNALS AND ARTICLES.

The first number of the *Journal of Abnormal Psychology,* edited by Dr. Morton Prince, of Tufts College Medical School, and published by the Old Corner Bookstore, Boston, contains the following articles:

Dr. Pierre Janet, Professor of Psychology, College of France: 'The Pathogenesis of Some Impulsions.'

Professor W. v. Bechterew, St. Petersburg: 'What is Hypnosis?'

Dr. James J. Putnam: "Recent Experiences in the Study and Treatment of Hysteria at the Massachusetts General Hospital, with Remarks on Freud's Methods of Treatment by 'Pyscho-Analysis.'"

Dr. Morton Prince: 'The Psychology of Sudden Religious Conversion.'

Dr. John Franklin Crowell, secretary of the Section of Social and Economic Science, American Association for the Advancement of Science, has become a member of the editorial staff of *The Wall Street Journal.*

SOCIETIES AND ACADEMIES.

THE SOCIETY OF GEOHYDROLOGISTS, WASHINGTON.

At the sixth regular meeting of the society, which was held on Wednesday, March 7, the following papers were presented:

Thermal Springs of the Simplon Tunnel: B. L. Johnson.

Tidal Fluctuations of Certain Wells in Japan: F. G. Clapp.

The seventh regular meeting was held March 21, the following paper being presented:

Occurrence of Water in Crystalline Rocks: M. L. Fuller.

The investigation, which formed a part of the work of the division of hydrology of the United States Geological Survey, was undertaken at the writer's request by Mr. E. E. Ellis for the purpose of securing definite information as to the probabilities of obtaining water supplies from granites and other crystalline rocks. The work included a study of the

wells in such rocks in Connecticut, and an examination of the quarries showing joints and other openings affording passages for underground waters. The results show that the prospects for obtaining adequate water supplies are much better than has often been supposed, less than two per cent. of the wells failing to get water, while all but ten per cent. get enough for the purpose for which they were drilled. The yield varies considerably with the character of the rock, averaging thirteen gallons per minute in granite, schist and gneiss, and thirty gallons or more in granodiorite. The wells show little variation of yield, even in dry seasons.

The water occurs wholly in joints, the most favorable points being at the intersection of two vertical systems, or of a horizontal with a vertical system. The average depth of the wells is a little over one hundred feet. In general the amount of water increases down to a depth of two hundred feet, beyond which it decreases. It is not advisable to sink wells to depths of more than two hundred and fifty feet. The yield of the wells is about the same on hills or plains and in valleys, but only about half as much water is obtained from wells on slopes. All of the water is under artesian pressure and a considerable number of the wells actually flow, at least when first drilled.

The occurrence of the water has a very definite relation to the presence of drift, which acts as a feeder to the joints when it is porous and as a confining layer giving artesian pressure when impervious.

M. L. FULLER,
Secretary.

THE AMERICAN CHEMICAL SOCIETY.

NEW YORK SECTION.

THE sixth regular meeting of the section was held Friday, March 9, at 8:15 P.M., at the Chemists' Club.

The program of the evening was as follows:

Specific Atomic Volumes of the Periodic System: CHAS. S. PALMER.

The periodic arrangement of the chemical elements is usually given in one of two forms: One in short and long series; the other in a condensed grouping of all short series. After a popular illustration of the conception of the 'atomic volume,' Lothar Meyer's well-known curve of atomic volumes was discussed. This is definite but very irregular, and with no special geometrical symmetry. By reducing the atomic volumes to a common denomination (as by referring them to the atomic volume of hydrogen as unity) for the ordinates; and by reducing the correlative atomic specific gravities to a similar common denomination (by dividing each atomic weight by its respective absolute atomic volume) as abscissas —a new form of curve is obtained which clearly shows that each independent series begins with an alkali element and closes with a halogen. Hence the second form of the periodic system is in error, except as it is a convenient typographical condensation. Other illustrations of the advantages of the short-and-long series arrangement were given.

The rest of the evening was devoted to a discussion of 'Legislation for Safeguarding the Sale of Narcotic Drugs,' by Messrs. A. L. Manierre, Gilman Thompson, S. H. Adams and Wm. Jay Schieffelin.

F. H. POUGH,
Secretary.

THE ST. LOUIS CHEMICAL SOCIETY.

AT the meeting of the St. Louis Chemical Society, Monday, February 12, Mr. Carl Hambuechen presented a paper on 'Electrolytic Iron.' The paper referred to work done at the University of Wisconsin by Professor Burgess and the speaker. The chief points brought out were that iron can be produced electrolytically at a cost which is within reasonable limits. The electrolyte can be maintained in good condition for months with little trouble and expense. A product has been obtained containing more than 99.9 per cent. iron. The only impurity is hydrogen, which is given off on heating the product. The immediate product is very hard and brittle. It resists oxidation at the ordinary temperature to a remarkable degree. The fusing point of pure iron seems to be near that of platinum. One obvious use of the product would be the making of alloys of iron of exactly known composition, with a view to study-

ing their properties. The investigation is still in progress at the University of Wisconsin. So far a ton of the material has been produced.

C. J. Borgmeyer,
Corresponding Secretary.

THE CLEMSON COLLEGE SCIENCE CLUB.

The sixtieth regular meeting of the club was held on Friday evening, January 19. The following program was given:

Dr. R. N. Brackett: 'The Contact Process of Making Sulphuric Acid.'

Professor F. T. Dargan: 'Modifications in Laboratory Apparatus.'

Dr. L. A. Klein: 'New Developments in the Prophylaxis and Treatment of Tuberculosis.'

Professor S. B. Earle: 'The Internal Combustion Engine with Especial Reference to the Diesel Engine.'

Fred H. H. Calhoun,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE PHYSIOGRAPHY OF THE ADIRONDACKS.

To the Editor of Science: An article by Professor Kemp in the March number of the *Popular Science Monthly* with the above title treats a subject on which I have been desirous of getting fuller information for some years past, namely, the origin of the mountain and valley forms in the Adirondacks; but there is a certain phase of the subject which still, to my reading, remains in doubt, namely, the age of the faults by which the mountain sides —or valley sides—are determined. The question arises whether the faults may not be relatively ancient rather than 'of no great geological antiquity,' and whether the valley-side scarps which now indicate the course of the faults may not be, not 'obviously the result of faulting,' but the result of differential erosion.

It is well known that the scarps which follow fault lines are of two kinds. Of one kind are those scarps which are the direct result of faulting or displacement, modified more or less by later erosion on the scarp face. Such a scarp is found along the western base of the Wasatch Mountains in Utah; and I believe that a similar fault scarp marks the base of the Rocky Mountains a few miles south of Colorado Springs. In both these cases, the displacement seems to have been progressive and to have continued through so long a period of time that the upper part of the fault face has been much dissected and worn back by erosion; the true fault scarp is seen only along the mountain base, where the face of the most recent uplift is comparatively little changed. It is evident that, as time passes, such fault scarps will be more and more worn back, and that in time they will be topographically obliterated. Topographically obliterated faults are common in the Appalachians where the faulting is of remote date.

Of another kind are those scarps which truly follow fault lines, yet which are directly the result of erosion rather than of faulting. For example, the Hurricane Ledge or escarpment in the Arizona plateaus north of the Colorado canyon. This scarp was originally described as wholly the direct effect of faulting; but later study has given good reason for believing that it is the effect of differential erosion; that the original effect of the displacement was obliterated in a past cycle of erosion, and that in the present cycle the scarp has been brought to light again by the removal of the weaker strata on the west of the displacement, while the more resistant strata remain in strong relief on the eastern side. Similarly in the Triassic formation of Connecticut, numerous scarps in the trap ridges are here known to follow fault lines; yet the faults are demonstrably so old that their original topographic effects were completely obliterated in a past cycle of erosion, and the fault scarps as now seen result from the revival of erosion following a general uplift of the worn-down region and the consequent removal of the weaker rocks on one side of the fault line, leaving the resistant trap sheets on the other side in strong relief. (This statement does not apply to the western faces of the trap ridges, which are merely retreating escarpments entirely due to erosion; but to the oblique escarpments, where the trap ridges are cut off by the faults.) In the same region there are a few narrow graben-like troughs, enclosed by steep walls; they are not due to recent faulting, but to the removal by modern erosion of the zone of shattered