the university. Dr. Schamberg was director of the Research Institute.

THE magnetic-survey yacht *Carnegie,* under the command of J. P. Ault, arrived at San Francisco on February 19. After re-outfitting there, she will continue her present circumnavigation cruise, which was begun at Washington in October, 1919, and has an aggregate length of abqut 62,000 nautical miles. She will cruise in the Pacific Ocean until about September and thence return via the Panama Canal to Washington in October.

PUBLIC lectures under the auspices of the New York City College Chemical Society, in the Doremus Lecture Theatre at four-thirty P.M. are announced as follows:

March 7. "Beyond the laboratory," Ellwood Hendrick.

March 15. "The service of the synthetic dye industry to the state," Marston Taylor Bogert, professor of chemistry at Columbia University.

March 23. "The trail of the chemist in the packing industry," Charles H. MacDowell, president, Armour Chemical Company.

April 8. "Explosives in war and peace," Ernest M. Symmes, Hercules Powder Co.

April 14. "Chemical evolution," Daniel D. Jackson, professor of chemical engineering at Columbia University.

THE Southwestern Division of the American Association for the Advancement of Science announces the following lectures at El Paso:

February 15. "How to live," Dr. Jenness.

March 1. "Alien insect enemies," Benjamin Druckermaur.

March 14. "The mechanism of heredity, development and evolution," Edwin Grant Conklin, of Princeton University.

March 15. "Historical progress in chemical theory," F. H. Seamon.

April 5. "Reclamation work," L. M. Lawson.

April 19. "Great American scientists: Major J. W. Powell and Professor Langley," E. C. Prentiss.

May 3. "Southwestern agricultural problems," Robert S. Trumbull.

May —. "Archæology," Edgar L. Hewett, of the School of American Research, Santa Fe, N. M.

May 17. "Crystallography," James C. Crichett.

UNIVERSITY AND EDUCATIONAL NEWS

BY the will of Miss Helen F. Massey a legacy of $500,000 has been left to the University of Pennsylvania. It is reported that one of the conditions of the bequest is that the income shall be used for increasing the salaries of members of the college faculty.

HAROLD HIBBERT, Ph.D., Sc.D., assistant professor in Yale University, has been promoted to an associate professorship of applied chemistry, and assigned to the graduate school and the Sheffield Scientific School.

DR. HUGH C. MULDOON, professor of chemistry at the Albany College of Pharmacy, has become dean and professor of chemistry in the School of Pharmacy, Valparaiso University.

THE biology department, Macdonald College, has been divided into two departments, the department of entomology and zoology, under Professor William Lochhead, and the department of botany, under Professor B. T. Dickson. Dr. G. P. McRostie, Ph.D. (Cornell, '17), has been appointed assistant professor in the cereal husbandry department in charge of grass and clover investigations, and Walter Biffen, B.Sc. (Wales '06), has been appointed lecturer in the department of botany.

DISCUSSION AND CORRESPONDENCE

MUSICAL NOTATION

TO THE EDITOR OF SCIENCE: While musical notation is not a matter of great scientific interest, reform presumably is.

The desirability of the changes advocated by Professors Huntington and Hall may be admitted. This leaves the space available for briefly discussing the cost.

The reform of printing implies (1) reprinting all existing music, and (2) scrapping some machinery, type, etc.

There is also an ideal cost. Whatever the exact methods of physical science may ultimately reveal as to the pitch in orchestral

playing, there is no question for instance that a succession of notes, G, G sharp, A and a succession G, A flat, A, are musically distinct, and that each actual sound on the piano is a symbol used to stand in turn for many musical entities. The reformed method would destroy the signs of some of these distinctions and reduce playing at sight to striking a succession of notes with little chance of prevision of the musical meaning.

As to the reformed keyboard there is again an obvious material if no clear ideal loss. However the judgment that the simplification of "physiological reflex" is of much value might be demurred to. One can conceive a psychologist taking the stand that a reflex is a reflex, and a musician saying that he had established the reflexes and forgotten the process. Finally we might have a violinist objecting to the pianist borrowing his G clef and returning it in a damaged condition, for advantages on the keyboard would be disadvantages on the fingerboard where the hand covers an octave diatonically and the accidentals are made by a special finger movement.

If musicians should bring forward these matters it must not be inferred that they are opposed to reform. On the contrary most of them desire it but can not meet the bill. The piano is no worse off than other instruments, probably better. A tenor trombone player in the ordinary week's work may have to read from music written in six or seven different systems, but the world rarely hears his complaints.

R. P. Baker

Iowa City, Iowa

MIRAGE AT SEA

To the Editor of Science: In the Sections reports of the meeting of the B. A. A. S., Bristol, 1875, p. 26, M. J. Janssen gave a brief summary of his observations and conclusions with regard to mirage at sea. As this happens to connect with a phase of low sun phenomena in which I am interested, and as I find no trace of any further publication by him, I would be glad to receive information as to whether he published further on this subject.

Willard J. Fisher

Woods Hole, Mass.

THE SIDEWALK MIRAGE

To the Editor of Science: My first experience with the sidewalk mirage described by Professor McNair in your issue of August 27, was on a smoothly paved straight-away between Canton and Alliance, Ohio. The time was three o'clock P.M. of a very hot day in August, 1918, the temperature being just about 100°. We were headed east on a level stretch, while about a mile ahead of us on a slightly higher level was a car apparently submerged in water to a depth of about two feet. A woman crossing the roadway was "in" up over her knees. As none of our party had ever seen such a reflection we got out of the car lest it might be caused by the windshield. At first the vision was lost until we discovered that the angle of vision was so small that we had to hunt for it, when it remained clear and distinct as long as we had the time to watch it.

Since that time I have seen a number of similar reflections, some in warm weather and others in cold; which leads me to conclude that heat is not necessary to produce them. The distance appears to govern the height from the ground as I have seen one within a distance of a square and it was within two or three inches of the surface. The surface reflection mentioned by Mr. Platt in your issue of September 27 is not uncommon, but could never be mistaken for the mirror-like surface of the mirage after you have seen a real one. Such explanations as I worked out in 1918 were upset the following winter and I shall watch with interest for further information that may be offered.

C. P. Du Shane

A RAINBOW AT NIGHT

To the Editor of Science: About 11 P.M. on Thursday, November 18, while waiting for a street car, I saw a clearly defined rainbow—a phenomenon which is possibly of sufficiently rare occurrence at night to be of interest to some of your readers.

A drizzling rain was falling overhead, but