hereditary. Alfred W. G. Wilson gives some interesting accounts of 'Chubs Nests,' probably made by *Semotilus corporalis*. These 'nests' are small mounds of pebbles and sometimes reach a diameter of five or six feet and a height of 14 to 24 inches. In correspondence Dr. Jordan alludes to the flying-fish problem, stating his opinion that the fins are *not* moved. But when a flying-fish is laid on a vessel's deck the fins are flapped vigorously, and why not in the air?

The Museums Journal of Great Britain for April notes that the eighteenth meeting will be held in Dundee. F. A. Bather discusses 'Interchangeability in Cases,' with special reference to those in the geological department of the British Museum. It is soothing to find that Dr. Bather has met the ever-occurring irritating facts that the cabinet-maker shows a diabolical ingenuity in frustrating the work of the designer, and that no carpenter with any proper pride will make a drawer or a shelf that will run freely. The interchangeability of large cases is rather a difficult matter, but was to a great extent applied by Dr. Goode in the U. S. National Museum. Dr. O. Lehmann describes some interesting features in 'The Altona Museum Exhibit at Dresden, 1906,' wherein he so arranged the specimens as to give the visitor the idea that nature works in much the same manner as the artist and that the form is the shortest artistic expression of the whole life of the animal. From this and previous articles it is evident that Dr. Lehmann has expended much thought in making his museum attractive and instructive to the ordinary visitor.

SOCIETIES AND ACADEMIES

THE NEW YORK ACADEMY OF SCIENCES—SECTION OF ASTRONOMY, PHYSICS AND CHEMISTRY

A JOINT meeting with the Physics Club of New York City was held at the American Museum of Natural History on Friday evening, March 22. The following demonstrations were given:

F. J. ARNOLD: Finding the weight of an irregular body by means of its center of gravity. An irregular body consisting of a 50 cm. wooden rod with a bar of metal attached at one end to give the combination a low center of gravity. Location of center of gravity, fulcrum and known force marked on paper strip fastened to bar and lever arms measured directly by means of these points.

R. H. CORNISH: (1) Method of projection on screen of lines of force surrounding a conductor carrying a current. (2) Mechanical illustration of beats in sound.

J. STEWART GIBSON: New piece of apparatus for showing the relation between intensity of illumination and distance.

W. R. PYLE: (*a*) Dip-needle demonstration. (*b*) Magnetizer for magnets.

E. R. VON NARDROFF: An apparatus for determining the moment of inertia in gm.-cm.^{2} units.

CHAS. FORBES: (*a*) The osmosescope. (*b*) The centrifugal railway.

W. M. Campbell read a paper on the effect of pressure on magnetization of iron. The paper referred briefly to the Kirchoff theory on the effects of stress deduced from the strains due to magnetization, to the experimental work done by Wassmuth, Tomlinson, Nagaoka and Honda and Miss Frisbie, and the contradictory results they obtained. Then followed a description of the apparatus used by the writer, the method of conducting the experiment and the results. Higher pressures were used in magnetizing fields stronger than those used by other investigators. Keeping the pressure constant and changing the field, the results showed an increase in intensity up to about eighteen units of field, then a decrease with a change of sign at about $H = 90$ units, and a continual decrease with increase of field.

J. Stewart Gibson read a paper on the results of a series of experiments on the critical angle; its effect on vision from underneath the surface of water.

At a meeting of the section held on Monday evening, May 20, F. M. Pedersen read a paper on the influence of molecular structure upon the internal friction of the vapors of certain isomeric ethers. The viscosity coefficients of

various ether vapors at 100° C. were obtained by the well-known transpiration method. In the apparatus used the capillary was perfectly straight and the driving pressure obtained by a column of mercury descending under gravity. The most interesting substances examined were eight ethers, some of them extremely rare, divided into three groups of isomers. The results show the same fact for these propyl compounds that was observed by Lothar Meyer[1] and Steudel for butyl compounds, viz., the molecules of a tertiary compound are smaller than those of a secondary, which in turn are smaller than those of a primary.

William Campbell read a paper on the iron carbon series of alloys. The various published equilibrium curves of the series, by Roberts-Austen, Rooseboom, Le Chatelier, Benedicks and others, were reviewed. A series of lantern slides showed the various changes of structure which take place (*a*) by variation in composition; (*b*) by annealing at different temperatures. Two systems were shown to occur: I. austenite (mixed crystals) and cementite; II. austenite and graphite. The former is unstable, the latter stable.

WILLIAM CAMPBELL,
Secretary

COLUMBIA UNIVERSITY

DISCUSSION AND CORRESPONDENCE

THE CLOCK OF THE U. S. NAVAL OBSERVATORY

TO THE EDITOR OF SCIENCE: While not desiring to appear to enter into any controversy with the author of the article on 'The Clocks of the Greenwich and the U. S. Naval Observatories' which appeared in your issue of May 31, it would seem that certain facts should be stated to clear up the misunderstanding that has occurred.

I think no one will disagree with the statement that the value of an astronomical clock is to be measured by the degree of accuracy with which its correction can be predicted from observed corrections or interpolated between those corrections: If a series of clock rates extending over several months can be shown to follow such a simple law as that given on page 451 of SCIENCE for March 22, 1907, for the Naval Observatory clock, *viz.*:

$$\text{Daily rate} = +0^{s}.0161 - 0^{s}.00103\,(T - \text{Mar. } 29.0) - 0^{s}.0456\,(t - 27^{\circ}.0),$$

and when both these terms have such a probable explanation in physical phenomena, it would be folly to refrain from the use of this formula in investigating the running of the clock. It follows that the mean residual $0^{s}.015$ is what really indicates the performance of the clock and not $0^{s}.035$ as deduced by Mr. Lewis.

The statement by Mr. Lewis that in my article "the Greenwich clock rates are spread over a period of one year" is somewhat misleading as they were divided into twelve monthly groups and each group was considered by itself as is clearly shown on page 450 of SCIENCE for March 22, 1907. That would seem to be as fair a method of treating them as the published data would provide.

In conclusion attention may be called to the article in SCIENCE for April 12, 1907, page 570, 'A Riefler Clock and a Self-registering Right Ascension Micrometer,' in which it has seemed to the writer that the Naval Observatory clock runs even better than was indicated by the mean residual $0^{s}.015$.

W. S. EICHELBERGER
U. S. NAVAL OBSERVATORY

VARIATION IN THE COROLLA OF LINARIA VULGARIS MILL

TO THE EDITOR OF SCIENCE: In examining the *Linaria vulgaris* Mill., with a class in botany I found the following remarkable variations in the corolla which may be of interest to some of your readers. The flowers in which the variations appeared were all on the one specimen.

In the corolla of two of the flowers in which the variations occurred the spur was absent, as was also the usual orange-colored palate. The corolla in both these flowers consisted of five petals, but in one case there were four petals in the upper lip and one in the lower, while in the other all five petals were in the position usually occupied by the upper lip.

The corolla of a third flower was tubular,

[1] *Pogg. Ann.*, 1882, Vol. 16, p. 394.