obtained could be so classified that a series might be made, each member of which would differ from the next almost insensibly. This, of course, would take a long time to do, as small stars can be examined only in very fine weather. When it was done, however, the results would be very valuable and interesting.

a Gruis.—This is a second-magnitude white star, with the usual spectrum crossed by distinct hydrogen lines.

β Gruis is a second-magnitude star, and nearly as bright as the *lucida* of this constellation. Its color is reddish-orange, and its spectrum is much like that of *γ Crucis*, but the groups of lines are not so distinct, and, generally,there is a sort of approach to the appearance presented by the spectrum of *Mira Ceti*, which I find thus described in my note-book, under the date October 8th, 1878: "Saw to-night the spectrum of *Mira :* it is really wonderful—something like that of *a Herculis*, as given by Chambers. It seems to consist of bright broad bands, with narrow ones in between. These bands are dark, but hardly black. The effect produced is, as it were, that of an irregular set of columns. The brightest part of the spectrum is at the yellow and the green."

a Piscis Australis (Fomalhaut).—This star is visible at home sometimes, but its altitude there is so small that it can scarcely be properly observed with the spectroscope. *Fomalhaut* is a first-class star of the most pronounced type ; it is very remarkable for the great breadth of the F hydrogen line. In *Fomalhaut* it is far broader than it is even in *Sirius*. As an increase in the breadth of the hydrogen lines has been shown to be due to increased pressure, and as the increase in breadth is also proportional to the pressure brought to bear upon the gas which gives the lines in the spectrum, we may, I would venture to suggest, conclude that the pressure at the surface of this star is extremely great. That is to say, *Fomalhaut* is either extremely dense and compact, so that its radius is very small compared with its mass (which is not very likely), or it is one of the very largest stars in the sky.

In conclusion, I would ask you to overlook any faults of style that may be observable in this paper. It claims to be nothing more than its title announces it to be— " Notes on Southern Stars."

SCIENTIFIC BOOKS.

Mr. W. H. Farrington recently gave an interesting Lectures on scientific books before the American Institute, a full report of which may be found in *Engineering News* of March the 19th. He said that in spite of the large number of scientific works published, there still are constant enquiries for books on certain subjects, which have yet to be written. This he explained was due to various causes, one being that the demand for certain books do not warrant their publication, and secondly, that many works treating on manufactures are withheld, it being the policy of those who could write them, to keep from the public such information. He stated that the English publishers seldom stereotype their better class of books, but print from the type, whereas in America it is the custom to print from such plates, permitting a much smaller edition to be issued. Those interested in the literature of Mechanics, and " *Engineering Science*," should read Mr. Farrington's Lecture from which they may gather many practical hints respecting the purchase of such books.

ASTRONOMY.

THE March number of the *American Journal of Science* contains a paper by T. C. Mendenhall, of Tokio, Japan, ' On the Determination of the Coefficient of Expansion of a Deffraction Grating by Means of the Spectrum." The object of the research was to find the coefficient of expansion of the peculiar alloy of tin and copper, now generally used for ruling gratings. The value of the coefficient of expansion is independent of the wave-length of the line upon which the measurements are made and of the number of lines to the inch. The temperature of the grating was altered by placing the plate in one end of a small wooden box which could be filled with water and brought to any given temperature. The resultant value for the coefficient of expansion from the mean of twenty measurements is

$$E = .0000202$$

DR. MEYER, Assistant Astronomer at the Geneva Observatory, has employed the microphone in transmitting the beats of the standard clock of the Observatory to different parts of the building, and also to the Regulating Clock of the city Time Service. The microphone is fixed upon the outside of the clock-case and placed in circuit with a small battery and a telephone. The beats of the clock can then be readily heard throughout the room.

AT the request of the Treasury of the Royal Astronomical Society, a committee has been appointed to advise the Government upon the steps which it is desirable to take in order to secure observations of the Transit of *Venus* across the sun's disk, 1882, December 6. The committee—which consists of the Astronomer Royal, the President of the Royal Astronomical Society, the President of the Royal Society, Professor J. C. Adams, the Earl of Crawford and Balcarres, Dr. De La Rue, Dr. Huggins, Professor H. J. S. Smith, Professor Stokes and Mr. Stone—has already commenced its labors.

ABOUT a year ago Admiral Moucher asked for a credit of 4,000 francs per year in order to publish a monthly astronomical review. M. Jules Ferry refused the grant, but a similar review is now being published at Brussels under the name *Ciel et Terre*. It appears twice a month and is devoted to meteorology and astronomy.

THE second number of *Urania* contains quite an elaborate article by H. C. F. C. Schjellerup, entitled, " Recherches sur L'Astronomie des Anciens ; " also a short communication upon Observations of the Spectrum of Comet 1880 f. (Pechüle) at Dun Echt, and a " Circular from the Smithsonian Institution."

A NEW VARIABLE STAR.—M. N. C. Dunér, of the Lund Observatory, reports upon the 24th of February, 1881, the discovery of a new, small variable. The star is given in the Bonn Durchmusterung (1855.0)

9.4 mag. R. A. $= 5^h, 17^m, 32^s.7.$
Dec. $= + 34^\circ 2'.1.$

THE asteroid, No. 217, discovered by Coggia at Marseilles on the 30th of August, 1880, has recently been named " *Eudora*."

WASHINGTON, MARCH, 1881. W. C. W.

We are informed by Professor Davidson that the following is the correct geographical position of the Davidson Astronomical Observatory, San Francisco, Cal.:

Latitude $= 37^\circ 47' - 22''.3$ North.
Longitude $= 122^\circ 24 - 39.0$ West of Greenwich.
In time $= 8^h 09^m 38^s.6$

This differs from the figures we recently gave at page 107, in the number of seconds in time.