

were held at the University of Pennsylvania on Friday evening, November 12, addresses being made by Dr. Frank Schlesinger, président of the American Astronomical Society, Provost Edgar F. Smith, of the University of Pennsylvania, and the Rev. Robert Norwood, pastor of the Presbyterian Church, with which Professor Doolittle was connected.

## OBITUARY NOTICE OF JOHN NELSON STOCKWELL OF CLEVELAND, OHIO

BY T. J. J. SEE

In the death of Professor John Nelson Stockwell of Cleveland, Ohio, May 18, 1920, in the 89th year of his age, America has lost one of her foremost philosophers and the dean of the group of eminent astronomers which originally included Gould, Hall, Newcomb, and Hill. Dr. Stockwell was born on a farm near Northampton, Mass., April 10, 1832, but his parents—William Stockwell III, and Clarissa Whittemore Stockwell, who had been married May 19, 1826—with their five children, moved to Ohio in the autumn of 1833. The future astronomer was the youngest of these children, and was of frail constitution till his fourteenth year, after which he became robust. As his parents were poor, he grew up after his eighth year, with his uncle, Oliver Edgerton, at Brecksville, near Cleveland, Ohio, with which city he was always associated.

Stockwell's early educational opportunities were limited by the undeveloped state of the schools of Ohio, so recently carved out of the great Northwest Territory. But by good fortune common school books fell into his hands, and at twelve years of age his intellectual interest began to assert itself. From the study of arithmetic he passed to algebra, geometry and astronomy. By the accounts given in popular treatises on astronomy, he was led to acquire in 1852 Bowditch's translation of Laplace's *Mécanique Céleste*, which fixed his career in mathematical astronomical research. It will be remembered that Dr. Bowditch had published this great work in 1838-9 at an enormous personal sacrifice, but it was likewise of the greatest inspiration to such astronomers as Hall, Newcomb and Hill. Thus for nearly a century it fixed the careers of the leading American astronomers; and in 1840 Bowditch's edition of Laplace influenced the French Chamber of Deputies to republish the chief works of Laplace, when Madame Laplace was

on the point of disposing of a small property, to secure means for this purpose—as mentioned by Arago in his eulogy on Laplace.

Dr. Stockwell was closely associated for forty-two years with Dr. B. A. Gould, who published many of his researches in the *Astronomical Journal*; but he also made numerous contributions to the *Observatory*, the *American Journal of Science*, *Science*, and *Popular Astronomy*. The well known *Memoir on the Secular Variations of the Eight Principal Planets*, was published in the *Smithsonian Contributions to Knowledge*, 1873, on the recommendations of Newcomb and Hall. It had been begun about 1858, but was much delayed, owing to the civil war, and finally was completed under the patronage of Mr. Leonard Case, 1872. Mr. Case became celebrated as the founder of the Case School of Applied Science, Cleveland, in which Dr. Stockwell was the first professor of mathematics and astronomy, 1881-1888, when he gave up teaching to devote all his time to research. Mr. Case also aided Dr. Stockwell in his *Theory of the Moon's Motion*, Phila., 1875, 3rd. edition, 1881. This Theory was a development of much interest, yet it led to some differences with Hill, Adams and other geometers in regard to the method of calculating the motion of the lunar perigee, which has presented difficulties since the time of Newton and Clairault.

In later years Dr. Stockwell made extensive researches on eclipses since the year 3784 B. C. and developed methods for using them as checks on the reckoning in chronology. And in the 88th year of his age he published a new method with elaborate tables for attacking the problem of the ocean tides, which marks a notable practical advance. At the same age he communicated to the writer a notable improvement on Hill's Method for finding the *Maximum Lunation*, which will shortly appear in the *Astronomische Nachrichten*, where it will be generally accessible to astronomers.

Dr. Stockwell was married December 6, 1855, to Miss Sarah Healy, and to this happy union—only broken in 1916 by her death, after sixty-one years of devotion—six children were born—five boys and one girl. Two sons died, one in 1883, the other in 1884, but otherwise the children survive and are highly respected citizens of Cleveland, Ohio, and of the state of Kansas. Always of mild and gentle manner, Dr. Stockwell was much beloved, and his record of devotion to pure science for seventy years, is one which has left a lasting impression on his time.

September 30, 1920.

# PLANETARY PHENOMENA FOR JANUARY AND FEBRUARY, 1921

MALCOLM MCNEILL

## PHASES OF THE MOON, PACIFIC TIME.

New Moon.....	Jan. 8, 9 <sup>h</sup> 27 <sup>m</sup> P.M.	New Moon.....	Feb. 7, 4 <sup>h</sup> 37 <sup>m</sup> P.M.
First Quarter....	" 16, 10 31 P.M.	First Quarter.....	" 15, 10 53 A.M.
Full Moon.....	" 23, 3 8 P.M.	Full Moon.....	" 22, 1 32 A.M.
Last Quarter.....	" 30, 12 2 P.M.	Last Quarter.....	Mar. 1, 6 3 A.M.

*Mercury* on January 1 is a morning star rising about half an hour before sunrise and is therefore too near the Sun for naked eye visibility. It is moving eastward and passes the Sun on Jan. 16, thus becoming an evening star. It is then some distance south of the Sun and for a day or two rises later and sets earlier. Its eastward distance from the Sun now increases, but remains too small for naked eye view until after Feb. 1. It reaches greatest east elongation on Feb. 15 and then remains above the horizon for about an hour and a half after sunset. It is then an easy naked eye object, and can be seen on clear evenings for a week before and a week after the time of greatest elongation. The duration of visibility is shorter than usual as the elongation is only  $18^{\circ}8'$ , near the minimum, the planet passing its perihelion only eight hours after reaching greatest elongation.

*Venus* is an evening star in fine position for evening observation, remaining above the horizon for from three and a half to four hours after sunset. It comes to greatest east elongation from the Sun on Feb. 9. Its distance from that body is then  $46^{\circ}46'$ . The greatest elongations differ only slightly as the orbit is nearly circular, whereas the greatest elongations of *Mercury* differ as much as 50%, the orbit being very eccentric. During the two months the planet moves  $56^{\circ}$  eastward and  $28^{\circ}$  northward from *Capricorn* thru *Aquarius* into *Pisces*. It passes the Vernal Equinox on Feb. 2. During the winter months *Venus* will be very bright, far brighter than the other planets, the maximum being reached about the middle of March, half way between the times of greatest elongation and inferior conjunction. Its stellar magnitude will then be  $-4.3$ . On Jan. 1 it is only about half a magnitude fainter. During the latter part of February it will be bright enough for naked eye observation in full sunlight. *Venus* passes conjunction with *Uranus* on Jan. 9, with *Mars* also on the same date, the least distance between the planets being rather less than the Moon's apparent