

increasing series of gauging powers, by which the profundity in space of every object consisting of stars can be ascertained, as far as the light of the instrument will reach, Sir William Herschel proceeds to make use of some of his numerous observations made upon those occasions, to show how the distances of globular and other clusters of stars may be obtained, and has represented their situations in space by a figure, in which their distances are made proportional to the diameter of a globular space, sufficiently large to contain all the stars that are visible to the eye of an observer in the clearest nights.

The author then details a series of observations of clusters of stars, from which the order of their profundity in space is determined, and describes the manner in which he represents the profundity of celestial objects in space by diagrams; and in the concluding section of his paper, considers the extent of the power of telescopes to reach into space when they are directed to ambiguous celestial objects.

On the Structure of the Poisonous Fangs of Serpents. By Thomas Smith, Esq. F.R.S. Read June 4, 1818. [*Phil. Trans.* 1818, p. 471.]

The object of this paper is to explain the existence of a slit in the fangs of serpents, extending from the foramen at the base to the aperture near the point, and to show that this slit is caused by the manner in which the tube through which the poison flows is formed. After describing the growth of the teeth of poisonous serpents, the author observes, that in those which are not venomous, there are no traces of any furrow or depression.

A drawing, illustrating the author's description, is annexed to this paper.

On the Parallax of a Aquilæ. By John Pond, F.R.S. Astronomer Royal. Read April 16, 1818. [*Phil. Trans.* 1818, p. 477.]

The telescope erected for this investigation resembles in its construction that which was formerly used for the observations of α Cygni. It has an achromatic object-glass of 10 feet focal length, and 4 inches diameter.

The Astronomer Royal had first selected β Canis Minoris as a proper star to be compared with α Aquilæ; but finding, upon trial, that it could rarely be seen in the day-time, he was induced to substitute λ Pegasi. Not being quite satisfied of the stability of the instrument, the author has only computed those observations in which each star was observed in the same day, and in the short interval of three hours; so that it was not likely any sensible change in the telescope should have taken place. The result of fifty-four observations between the 25th of July and the 29th of December 1817, afforded no appearance of parallax; indeed the author considering it as a hopeless task to establish its existence by observations on a star so far from the zenith, was about to abandon the subject, when his at-

tention was again called to it by Dr. Brinkley's late communication. By reference to an annexed table, it appears that the greatest error in a series of ten observations, made with the transit, could not have been more than $0''.03$, and consequently it is not probable that the error in fifty observations should have exceeded half that quantity. Taking, however, every circumstance into consideration, it is possible that the whole parallax of α Aquilæ may have amounted to half a second, which is about a tenth part of that assigned to this star by Dr. Brinkley. The author, however, proposes to continue the investigation; and when his observations shall have been sufficiently multiplied, promises to communicate the result to the Society.

On the Parallax of the Fixed Stars in Right Ascension. By John Pond, F.R.S. *Astronomer Royal.* Read May 28, 1818. [*Phil. Trans.* 1818, p. 481.]

This paper is intended as an appendix to a former one on the same subject. The author extends his investigation to a few more of the principal fixed stars. He divides the results of any one star into two parts; first, alternately or accidentally, and also according to the law of parallax; and as no greater difference is observable in the latter than in the former case, it is demonstrable that parallax has had no sensible effect on the observation. He next inquires what may be the magnitude of the parallax that might be concealed by the accidental error of observation. Without entering into a rigorous computation on the laws of probability, he conceives that it may be inferred by inspection, that it is almost impossible that the longer axis of the ellipse, described by the brightest fixed star, can exceed $0''.6$, and it is very improbable that it should amount to half as much; and as this quantity can never derange the mean place of a star $0''.1$ in declination, it is evident that all attempts to determine the parallax by a meridian instrument of any description must be utterly hopeless.

An Abstract of the Results deduced from the Measurement of an Arc on the Meridian, extending from Latitude $8^{\circ} 9' 38''.4$, to Latitude $18^{\circ} 3' 23''.6$ N., being an Amplitude of $9^{\circ} 53' 45''.2$. By Lieut. Colonel William Lambton, F.R.S. *33rd Regiment of Foot.* Read May 21, 1818. [*Phil. Trans.* 1818, p. 486.]

The author, at the commencement of this paper, refers to the 12th volume of the Asiatic Researches, in which there are detailed accounts of two complete sections of an arc on the meridian, measured by him in prosecuting the Trigonometrical Survey of the Peninsula of India. The first is comprehended between the parallels of Punnæ, a station near Cape Comorin, in latitude $8^{\circ} 9' 38''.39$, and Patchipolliam in Coimbatore, in latitude $10^{\circ} 59' 48''.93$. The second is comprehended between the parallels of Patchipolliam and Namthabad, a station near Gooty in the ceded districts, in latitude $15^{\circ} 6' 0''.21$.