

optician, in whose workshop he was brought up, and to whose business he succeeded, first in partnership with an elder brother, and afterwards alone, on the death of the latter.

Rear-admiral d'Urban has been dead some years, but the Council did not receive any news of his decease till very recently.

The Rev. Michael Ward had been a fellow of the Society for a long period. He was fond of astronomy, and possessed a small observatory.

Major-General Shrapnell was well known to military men as the inventor of the destructive shell which bears his name. He was for many years a fellow of the Society, though his period of active exertion was almost past before the Society was established.

Mr. James Moore French, chronometer-maker, at the Royal Exchange, was a zealous and successful artist, and on several occasions gained the prize given to the best of the chronometers which were tried at Greenwich.

Captain William Tucker, R.N. was introduced to the Society by his uncle, the late Mr. Frend, of whom an account appears in the last annual Report. He perished in November last, in the 48th year of his age, on the wreck of the unfortunate East Indiaman Reliance, which was lost off Boulogne. The circumstances of his death, and the devotion of his last moments, as narrated by survivors, to the performance of an act of humanity, created the strongest public sympathy. He had been almost all his life in active service, and particularly in cruising against the slave-trade, in which he had been remarkably successful; and he gained his commander's commission by a daring and prosperous attack upon a slaver of twice his force. He had been, previously to his death, in command of the Iris frigate, and senior officer on the Cape Coast station, and the failure of his health, which obliged him to return to England in a merchant-vessel, led to his unfortunate catastrophe.

Commander Michael Atwell Slater, R.N., was an officer who had gained distinguished reputation in the scientific branch of his profession; and was well known to many members of this Society for his zeal in the extensive surveys in which he was occasionally engaged. It was in one of these useful labours that he was unfortunately cut off in the prime of life, on the 2d of February in last year, by falling into the sea over the cliff called Holburn Head, on the eastern extremity of Scotland.

Mr. Innes of Aberdeen was well known to astronomers as a zealous calculator of eclipses, occultations, and tides; which occupied a considerable portion of his time. He was brought up as a watch and clock-maker: and although his professional gains were but small, yet by living very economically, he was enabled to collect together a valuable collection of books, which he has left behind him. He was a man of very mild temper and unassuming manners: and, after a very slow decay of health, died on the 22d of May, 1842.

The Council feel sure of the approbation of the Society at large

in the award of a Gold Medal to Mr. Baily, for his persevering and skilful management of, and complete success in, the repetition of the Cavendish experiment. The President has undertaken to explain in detail the grounds of this resolution, and to state to the meeting the more than usual obligation under which the Society has been laid by Mr. Baily's patient and sagacious proceedings. The publication of the 14th volume of the *Memoirs*, which is wholly devoted to an account of this experiment, renders any description, even of its general features, unnecessary in this place: but the Council cannot here refuse themselves the pleasure of recording their opinion, that in no instance whatever, since the foundation of the Society, has its medal been more worthily won, whether the result be looked at with respect to the skill and industry by which it was attained, or to the complete sufficiency of the Memoir in which it is promulgated.

While on this subject, it may further be stated that the 13th volume of the *Memoirs*, referred to in the last annual report as about to be presented to the Society by Mr. Baily, and containing the catalogues of Ptolemy, Ulugh Beigh, Tycho Brahé, Halley, and Hevelius, is now nearly completed, and nothing but the attention requisite for the Cavendish experiment has prevented it from being actually ready. Thus the Society receives, in the course of one year, two of the most valuable volumes of its *Memoirs*, both from the labour, and one at the expense, of the same Fellow, and that Fellow the one of all to whom the Society is most indebted, independently of these rich contributions.

In the course of the last year, the question has been started, whether it would not be advisable to alter the numerical typography now in use, and to return to the old method of forming the Arabic figures, in the manner still usually practised in handwriting. A committee appointed to consider this subject reported unanimously in favour of the alteration, and the Council have accordingly given directions that it shall be carried into effect in all the future publications of the Society. The printers have met the proposition with a readiness which deserves the thanks of the Society, the change involving, as it does, some trouble and expense. Fortunately, however, it has been found that though the old type has been almost entirely disused for many years, the punches necessary to recast it are still, of every size which the Society wants, in the hands of the type-founders. The Council strongly recommend the alteration to the fellows in their own private publications, as they are sure that the form now in use bears no comparison, as to distinctness and legibility, with that which it is proposed to restore.

During the past year, the trustees of the Radcliffe Observatory at Oxford have, for the first time, published the observations made at that establishment, in an octavo volume, containing the observations made in the year 1840. The director of that observatory, Mr. Johnson, is one of our most active members, and well known to us as the author of the excellent catalogue of southern stars, printed at the expense of the East India Company, and rewarded

by this Society with its Gold Medal in the year 1835. Mr. Johnson, conceiving that it would be desirable to confine his attention principally to a selected class of observations, determined to re-observe those stars in Groombridge's catalogue that are situate to the north of the zenith of his place. The volume, here mentioned, contains the first attempt of this kind: and in it we see the same marks of minute accuracy and scrupulous integrity that were so evident in his former publication. The Council trust that the publication will be continued in like manner from year to year, as it is only in this way that the progress of discovery can be rendered of essential and permanent advantage.

It has been mentioned at the preceding anniversaries of this Society that the British Association had appropriated funds for three very useful and important catalogues, which the Council are now happy to state have been completed. The first is an extension of the catalogue of this Society, published in the second volume of its *Memoirs*, with certain additional columns that will render it of greater value to the practical astronomer. The British Association have granted the funds requisite for the publication of this work, which will soon be sent to the press. The next two catalogues contain the reduction of the stars observed by Lacaille at the Cape of Good Hope, and of those observed by Lalande at the *Ecole Militaire* at Paris. These catalogues are finished, and the British Association propose to apply to government for a grant of the requisite funds for printing them.

The Council, while reviewing the subjects connected with astronomy which have been brought before the Society since the last anniversary meeting, beg particularly to call the attention of the meeting to the labours of Professor Henderson and of M. Hansen. It will be remembered that in the President's address, on delivering the Gold Medal to M. Bessel for his researches on the parallax of the double star 61 *Cygni*, honourable mention was made of the labours of Professor Henderson in a similar inquiry with respect to *α Centauri*, founded on the reduction of his own observations made with the mural circle at the Cape of Good Hope. This indefatigable astronomer has within the present year presented us with the result of a series of observations made at his request by Mr. Maclear expressly for the purpose; and which, extending as they do considerably beyond a year, or the time during which the parallax goes through all its changes, and averaging from eight to ten observations of the double altitude of each star in every month, will at least afford good ground for determining whether the problem of the parallax of this remarkable star is likely to be solved by meridian observations. But without entering into the question of the evidence offered by the observations, our thanks are certainly due to the untiring zeal of Professor Henderson in prosecuting this most important but too much neglected branch of astronomy, and in this expression the Council feel sure that the meeting will join.

The meeting will scarcely need to be reminded of the discovery of M. Hansen, to which allusion has been made, his letter having

been so recently read before the Society. The want of some general method of expressing the perturbations of a body moving in an ellipse, whose eccentricity and whose inclination to the ecliptic are not small, has been, as it were, the opprobrium of modern physical astronomy. The method which has hitherto been employed of dividing the orbit into several portions, calculating the differentials of the perturbations for the points of the orbit thus decided on, and then integrating them by mechanical quadratures, seems scarcely worthy of the present state of analytical science; and has put the patience of astronomers to the severest trials as often as the return of an interesting comet, such as Halley's or Encke's, has made necessary the rigorous computation of its disturbances by the larger planets. Still, such has been the difficulty of the problem, that up to the present time no person since Lagrange seems to have suggested or hoped for any means of removing it. M. Hansen has laid before us the result of his first trial in the case of the comet of Encke, and the comparison of his computed perturbations with those made by Encke by mechanical quadratures, proves the accuracy of the method as well as the easy application of it. We may be allowed to express a hope that we shall be soon in possession of the method itself, which we are thus far entitled to regard as a most brilliant conquest over one of the residual difficulties of physical astronomy. The Council cannot refrain from congratulating the meeting on the above proofs that the science which we especially cultivate is still advancing; that each year adds something to our stock of previous knowledge of the constitution of the universe, and that, too, of an importance that marks the zeal and the talent with which, both at home and abroad, preparations are making for the complete solution of the few most interesting problems which yet remain to us.

The Council have great pleasure in drawing the attention of the meeting to the very valuable present which the Society has recently received from Admiral Greig, one of our members, and a distinguished officer in the Russian navy. This consists of an altitude and azimuth instrument, by M. Reichenbach\* of Munich. The diameter of the azimuth circle is 15, and of the altitude circle 12 inches. The divisions, which are upon silver, read to 4" of space by 4 verniers upon each circle. The instrument is one of the kind which admits of repetition both in the horizontal and vertical planes, and is furnished with two telescopes; the principal one resting in Ys attached to the azimuth index, and the other placed below the azimuth circle, according to the ordinary arrangement. But a peculiarity deserving especial notice is the manner in which the usual difficulty of observing near the zenith is obviated. A diagonal reflector, in this case a prism, directs the rays through one of the pivots of the transit axis, in which the diaphragm and eye-piece are consequently placed, and thus the observer remains

\* In the *Notice* for January 1843, Article III. the instrument is erroneously stated to have been made by M. Ertel.