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EXHIBITING

A VIEW OF THE PROGRESS OF DISCOVERY

IN NATURAL PHILOSOPHY, CHEMISTRY, MINERALOGY, GEOLOGY, BOTANY,
ZOOLOGY, COMPARATIVE ANATOMY, PRACTICAL MECHANICS, GEOGRAPHY,
NAVIGATION, STATISTICS, ANTIQUITIES, AND THE FINE AND USEFUL ARTS.

CONDUCTED BY

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AND OF THE ROYAL SOCIETY OF SCIENCES OF DENMARK, &c. &c.

VOL. VI.

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JOHN THOMSON, EDINBURGH:
AND T. CADELL, LONDON.

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NOTICES TO CORRESPONDENTS.

THE two papers, which we learn by a letter from Professor OERSTED of Copenhagen were sent to this *Journal* by Dr FORCKHAMMER of Copenhagen have never reached us. If Mr FELDBORG, to whom they were sent, should see this notice, we trust he will forward the papers without delay.

A reply to Mr CHARLES BELL will appear in our next Number, together with a demonstration of his errors respecting the involuntary rotatory motion of the Eye-ball, a doctrine which he still persists in maintaining.

We have received Δ 's very excellent set of observations made at Rome on the 15th January; and also his interesting *Observations on the Climate of Naples*; and his *Remarks on Mount Vesuvius*, which will appear in next number. We shall be glad to hear from him as often as convenient.

We cannot refer our Correspondent J. R. to any work better than Mr Barlow's, published in 1823, and containing all the recent discoveries on electro-magnetism. He will be glad to learn, however, that a most complete account of the subject is now preparing for the EDINBURGH ENCYCLOPEDIA, by Professor OERSTED of Copenhagen, the distinguished founder of this new science. It will appear under the head of THERMO-ELECTRICITY in vol. xvii. part ii. of that work.

We beg to acknowledge the receipt of the excellent sets of observations made on the 15th January by Mr Staveley of Nottingham, Mr W. Snow Harris of Plymouth, Mr Murdoch, Huntly Lodge, Mr Christison, Burdsyards, Dr Jackson, and Mr Macvicar at St Andrew's, Mr W. Edgworth, Edgworthstown, the Rev. R. Butler, Trim, county of Meath, and those made at Tubingen. We trust that these gentlemen and others who take an interest in such observations, will not forget those on the 15th of June next.

In answer to C.'s inquiry respecting the most complete Rain-Gage, we beg to refer him to the very ingenious one invented by Mr Donovan, and described in the *Dublin Philosophical Journal*. We regret exceedingly to observe that the circumstances of the times have obliged the proprietors of this excellent work to discontinue it. It contained many original and truly valuable articles, and was conducted with an honesty and candour of no ordinary kind.

Mr Foggo's valuable paper on the Dew Point Hygrometer will appear in next Number.

The interesting papers from our esteemed Correspondent in India will appear in next Number.

* * Our Correspondents are earnestly requested to transmit their Communications to the Editor before the 5th of March, the 5th of June, the 5th of September, and the 5th of December.

Authors and Booksellers who wish their Works noticed early in this *Journal*, are requested to transmit them through the Publishers. Books of Voyages and Travels are particularly requested, and will be returned when desired.

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NOTICES TO CORRESPONDENTS.

We have received our Correspondent A's Letter from Rome, and shall be glad to hear again from him when he returns to Scotland.

Mr E.'s Essay is too elaborate for our pages, and is more suited for a Medical Journal.

We would recommend it to M. to send his Model to the Society of Arts for Scotland, which holds its meetings twice every month in the Royal Institution. If it merits it, it may appear at the General Exhibition of inventions, which is to take place in May 1827.

We shall be happy to solve the difficulties mentioned by our Bristol correspondent so far as we can; but we cannot undertake to be expounders of scientific riddles.

M. D.'s observations on Vision cannot be inserted. If he will give us a personal interview with him, we shall demonstrate to him the fallacy of his experiments. The papers to which he alludes are certainly full of experiments and observations; but they are bad ones. Nature may be interrogated by a thousand and one experiments, and yet may not give a response worthy of being recorded.

We have received J. C.'s observations on the Mean Temperature of the Earth, containing new formulæ for determining the mean temperature of different points on the earth's surface. The author has committed a mistake in *considering the mean temperature as an angle, of which he gives the sine and cosine*. Owing to the accidental circumstance of the polar temperature being not far from 0° . and the equatorial temperature above 80° . in Fahrenheit's scale, the formulæ give tolerably correct results; but if he uses the Centigrade scale or Reaumur's, he will find that his formulæ are entirely inapplicable. We shall be glad to receive J. C.'s Meteorological Journal, or an annual abstract of it, as it promises to be a valuable one. In answer to J. C.'s query, we beg to state that correct indications cannot be obtained from hygrometers in frosty weather. Captain Parry found that with Daniell's hygrometer he could never obtain a deposit on the back of the instrument, below an atmospheric temperature of $+6^{\circ}$. of Fahr.

Mr Nasmyth's description of an instrument for measuring the comparative expansibility of metals, will appear in our next number.

Mr Scouler's paper on the temperature of the North West Coast of America, will appear in next number.

Our Correspondents are earnestly requested to transmit their Communications to the Editor before the 10th of March, the 10th of June, the 10th of September, and the 10th of December.

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M. Seetzen has given a similar account of Nakous, in Zach's *Ephemerides* for October 1812.—See Daubeny's *Description of Active and Extinct Volcanoes*. Lond. 1826. p. 437.

ART. XXIV.—*Notice respecting the existence of the New Fluid in a large cavity in a specimen of Sapphire.* By DAVID BREWSTER, LL. D. F. R. S. and Sec. R. S. Edin.

IN two papers which are printed in this *Journal*, I have fully described the physical properties of the two new fluids which occur in mineral bodies. These fluids having been found only in the precious stones,—in quartz, amethyst, topaz, and chrysoberyl, it became interesting to detect them in other minerals, not only with the view of establishing their general prevalence at the formation of this class of bodies, but of ascertaining if they experienced any change in their properties from the mineral in which they are found.

Mr Sanderson lately put into my hands a specimen of sapphire, containing a very large fluid cavity, which, from the expansible nature of the fluid, seemed to resemble that which occurs in topaz. The cavity itself is regularly crystallized, and is about one-third of an inch in length. The fluid occupies about *two-thirds* of its length, and fills the cavity at a temperature of 82° of Fahrenheit. It seems to be more viscid and more dense than I have usually observed it, and in consequence of this property, the capillary margin of the fluid remains distinct and well marked, even at the instant when it fills the cavity. When the temperature descends below 82°, the contraction of the fluid is not accompanied with that violent effervescence which takes place in the deep cavities in topaz.

In the specimen under consideration, the fluid seems to have exerted a high expansive force upon the sides of the cavity, which it has succeeded in opening on both sides. The surfaces of the fissures thus occasioned, are covered with specks of a gelatinous-looking matter, like portions of the second fluid, when in a state of induration. The force, however, was not sufficient to burst the specimen, and the only effect of it seems to have been to expel into the fissures the second fluid, which always occupies the angular and narrow parts of the

cavity. This opinion seems to be confirmed by the fact, that none of the second fluid can be seen within the cavity, although this may arise from the difficulty of examining the angular portions of the cavity in the present state of the specimen.

There is another very interesting peculiarity in this specimen of sapphire. It contains at one extremity of the fluid cavity distinct groupes of transparent crystals, which have, no doubt, been deposited by the fluid. What these crystals are, we are not entitled to conjecture, but if the cavity were opened, it might be practicable to ascertain whether or not they are sapphire.

ART. XXV.—*Account of the Carrion Crow, or Vultur atratus.*

By MR JOHN JAMES AUDUBON, Member of the Lyceum of New York. Communicated by the Author.

ALTHOUGH this bird is closely connected with the Turkey-Buzzard (*Vultur aura*,) in many material points, yet the difference in their appearance and habits is sufficient to establish a difference of species.

The first view of the carrion crow is disgusting, when compared with that of the *Vultur aura*; its head and neck resembling in colour that of putrid matter. Its relative shortness, squareness, and clumsiness, together with its gait and manner of flying, are characteristic of an individual less powerful, and less deserving the high station which the carrion crow possesses in the order of birds, which naturalists place before eagles and falcons, so much its superior in every point of view.

Like the turkey-buzzard, the carrion crow does not possess the power of smelling, a fact which I have ascertained by numerous observations.

It is not common for these birds to extend their flight over the Alleghany Mountains. I have seldom seen them as far as Cincinnati on the Ohio, though the *Vultur aura* is by no means a scarce bird in the country around, and far above that place, yet at particular times I have met with flocks of twenty, or more in the neighbourhood of Louisville, Kentucky, not, however, with the true habits which they display in the south,