

$$\frac{g m_p}{R^2} > \frac{g m_a}{R^2} - m_a \phi v.$$

This inequality of attractive moments must determine motion toward the sun in favour of  $\frac{g m_p}{R^2}$ , and this condition holding good

for any value of  $g$  and  $R$ , it follows that the polar inflow and equatorial outflow must take place, provided only that space is not empty, as supposed by La Place, but filled with either an elastic or non-elastic fluid.

To put it in another way, Mr. Archibald imagines that in order to determine an outflow from the sun it is necessary for the centrifugal moment  $m_a \phi v$  to exceed the moment of gravitation  $\frac{g m_a}{R^2}$ , whereas according to my view, the value of the former

determines only the rate of outflow, but is immaterial as regards the principle of action. The projection of dust is entirely dependent upon the outflowing current. I leave it for Mr. Archibald to determine for himself the velocity of current necessary to move a particle of dust of given size and weight away from the sun in opposition to its force of gravity, which I am well aware is twenty-seven times that of the earth on its surface.

The gaseous current is of course produced at the expense of solar rotation, but this expenditure of energy is relatively much smaller than that lost to our earth through tidal action, and may be neglected for our present purposes. It is moreover counter-balanced by solar shrinkage as explained in my paper.

C. WM. SIEMENS

#### Review of "Aristotle on the Parts of Animals"— A Correction

SINCE the publication of my review of "Aristotle on the Parts of Animals," a correspondent has called my attention to an article by Prof. Huxley, "On Certain Errors respecting the Structure of the Heart attributed to Aristotle" (see NATURE, November 6, 1879), in which the Professor corrects the common error, attributed to Aristotle, of describing the heart of the higher animals as possessing three cavities only. In ignorance of this fact I assigned the merit of originally detecting the error, so long attributed to Aristotle, to Dr. Ogle, who tenders, I have no doubt quite independently, the same defence of the matter. I now write to give the priority of the detection of the error to Prof. Huxley, and to thank my correspondent for having afforded me an opportunity of studying a most original and instructive essay.

BENJAMIN WARD RICHARDSON

25, Manchester Square, March 27

#### Deep-Sea Exploration in the Mediterranean

I SHALL be obliged if you will kindly announce in NATURE that, taking into consideration the vote expressed at one of the plenary meetings by the Third International Geographical Congress at Venice, the Italian Government has decided that the deep-sea exploration in the Mediterranean be continued during the forthcoming summer; and towards the end of July or beginning of August next I am to embark on board the surveying steamer *Washington*, Royal Italian Navy. About one month will be devoted to deep-sea exploration under the able direction of Capt. G. B. Magnaghi, R.N.

The study of the animals collected during last year's cruise will be completed with that of those we hope to collect next summer. Since presenting my Preliminary Report to the Geographical Congress, I have looked more carefully into the fishes collected last year; amongst them are two specimens of the rare *Malacocephalus levis*, Lowe, dredged in 508 metres off the south coast of Sardinia, and in 823 metres off Mauritius (Egadi, Sicily); and two specimens of the still rarer *Coryphenoides serratus*, Lowe, new to the Mediterranean fauna, dredged from depths of 2805 and 2904 metres off the west coast of Sardinia.

Dr. J. Gwyn Jeffreys was here a short time ago, and has examined the mollusca, on which he will report.

HENRY HILLYER GIGLIOLI

R. Istituto di Studi Superiori in Firenze, March 23

#### The Basque Whale in the Mediterranean

I WAS very much interested in Mr. Clement R. Markham's most important communication on the "Whale Fishery" in the Basque provinces of Spain, produced in NATURE (vol. xxv. p. 365). Mr. Markham has carefully collected important materials

for the history of a whale (*Balena biscayensis*), which, if not quite extinct, appears to have become so, to all intents and purposes, in a region where it was once so common as to have given rise to an important industry, and to have had a powerful influence on the habits of the Basque people along the northern coast of Spain. Mr. Markham gives solitary instances of the appearance of the whale off the Basque coasts, up to a very recent period, and says that the last instance of its occurrence which came to his knowledge, was on February 11, 1878, when a whale was sighted off Guetaria, and successfully harpooned. This bit of news must have interested all cetologists, and I hope that it may interest Mr. Markham and the readers of NATURE to know that a fine, nearly adult female of *Balena biscayensis* was captured just one year before, in the Mediterranean, viz. on February 9, 1877, at Taranto. It was ably and fully described by Prof. F. Gasco (*Mem. R. Acad. Scienze di Napoli*, vii, 1878); the entire skeleton is in the Museum of Comparative Anatomy in the University, Naples, in the Central Collection of the Italian Vertebrata at Florence. I preserve a portion of the skin of the snout, with short hairs, and a model of the entire creature, reduced to one-twelfth, carefully executed from drawings and measurements taken from the whale immediately after death. I know of no other recorded instance of the capture of a true whale in the Mediterranean.

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#### Wind Measurements

AFTER reading the interesting article in NATURE, vol. xxv. p. 486, on wind measurements, the reader cannot but revert to the very unsatisfactory state of anemometry as it now exists. This is only too apparent from the reports which appear in the papers after a gale, and in which are generally detailed the estimated pressures and velocities of the wind as recorded by the anemometers at the principal meteorological stations. Thus during the gale of the 13th-14th of October last we were told that a pressure of 53 lbs. per square foot was recorded at Greenwich, and at the Bidston Observatory, Birkenhead, the pressure reached the alarming figure of 79 lbs. Now it may be readily shown without much calculation, that such pressures as these few buildings could withstand that were not of more than ordinary stability, not to mention the destruction of tall factory chimneys, which, when of the usual dimensions, will not stand a pressure of 30 lbs. per square foot. Yet no such destruction took place. I think, then, we must confess with T. Hawksley, F.R.S. (vide paper read before Section of British Association meeting, York, 1881, on Pressure of Wind on a Fixed Plane Surface), that our present anemometrical instruments are little better than philosophical toys.

C. H. ROMANES

Worthing, March 27

IN the account of D'Ons en Bray's anemometer, which I printed to accompany a drawing of that instrument at the Meteorological Society's Exhibition the other day, I stated that it was probably the earliest registering anemometer. I now find that I am mistaken, but as I erred in company with the President of the Society, I feel that I may well be excused. Until a still earlier instrument turns up, the idea of a registering anemometer must be ascribed to Sir Christopher Wren. In 1663 (see Birch's "History," i. 341, plate iii.), he laid before the Royal Society an account of his "weather clock," which is in fact a recording anemometer, but for direction *only*, together with an instrument for "showing degrees of weather," probably a self-recording barometer, but the description is not clear. The spindle which drives the hour-hand of the clock carries a pinion which moves a rack, long enough to pass out clear of the case on each side. At the end of the rack there is a pencil, which bears upon a disc keyed on to the spindle of the direction-vane. The disc carries a printed diagram, a series of radial lines indicating direction, the time being shown by a number of concentric circles. The irregular line drawn by the pencil records the direction of the wind. A fresh paper is placed on the instrument every twelve hours.

Whilst upon this subject, perhaps I may be allowed to call attention to a paper by Richard Lovell Edgeworth, on wind pressure, in the *Phil. Trans.* for 1783, p. 136. It contains the results of a series of experiments undertaken to determine the variations in the pressure of the wind upon surfaces of equal area, but of different forms. This is, no doubt, the paper referred to by Robinson, as the source whence he derived the