

## LETTERS TO THE EDITOR.

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## One Vote, One Value.

A CERTAIN class of problems do not as yet appear to be solved according to scientific rules, though they are of much importance and of frequent recurrence. Two examples will suffice. (1) A jury has to assess damages. (2) The council of a society has to fix on a sum of money, suitable for some particular purpose. Each voter, whether of the jury or of the council, has equal authority with each of his colleagues. How can the right conclusion be reached, considering that there may be as many different estimates as there are members? That conclusion is clearly *not* the *average* of all the estimates, which would give a voting power to "cranks" in proportion to their crankiness. One absurdly large or small estimate would leave a greater impress on the result than one of reasonable amount, and the more an estimate diverges from the bulk of the rest, the more influence would it exert. I wish to point out that the estimate to which least objection can be raised is the *middlemost* estimate, the number of votes that it is too high being exactly balanced by the number of votes that it is too low. Every other estimate is condemned by a majority of voters as being either too high or too low, the middlemost alone escaping this condemnation. The number of voters may be odd or even. If odd, there is one middlemost value; thus in 11 votes the middlemost is the 6th; in 99 votes the middlemost is the 50th. If the number of voters be even, there are two middlemost values, the mean of which must be taken; thus in 12 votes the middlemost lies between the 6th and the 7th; in 100 votes between the 50th and the 51st. Generally, in  $2n-1$  votes the middlemost is the  $n$ th; in  $2n$  votes it lies between the  $n$ th and the  $(n+1)$ th.

I suggest that the process for a jury on their retirement should be (1) to discuss and interchange views; (2) for each jurymen to write his own independent estimate on a separate slip of paper; (3) for the foreman to arrange the slips in the order of the values written on them; (4) to take the average of the 6th and 7th as the verdict, which might be finally approved as a substantive proposition. Similarly as regards the resolutions of councils, having regard to the above  $(2n-1)$  and  $2n$  remarks.

FRANCIS GALTON.

## A New Volcanic Island.

THE officer in charge of the Marine Survey of India, Commander W. G. Beauchamp, R.I.M., has forwarded the following description of Volcano Island derived from an examination made about sixteen days after its appearance above water. The island is situated off the coast of Arakan, in the Bay of Bengal, about nine miles to the north-westward of Chebuda Island, and has a greatest length of 307 yards in a S.S.W. and N.N.E. direction, and a greatest breadth of 217 yards in a N.W. and S.E. direction; the summit is 19 feet above high water.

Except close to the shore, the soundings in the neighbourhood appear to be unaltered, including the shoal to the N.N.W. which was touched on one line of soundings. The ship approached the island from the north-eastward, and left in an E.S.E. direction. A steam cutter left to the southward for ten miles and returned from S.S.E., and on neither course was any discrepancy in the chart discovered.

The island is still in an active condition at the northern end, several hot springs of liquid mud overflowing. It is steeper on the western side.

Temperatures (Fahrenheit) were taken at different parts of the island, the surface registering  $81^{\circ}$ , being the same as the atmosphere; at 2 feet below the surface  $96^{\circ}$ , 3 feet below surface  $104^{\circ}$ . But at the observation spot on the summit, and evidently the main crater, the temperature at 1 foot below the surface was  $104^{\circ}$ , at 2 feet below  $108^{\circ}$ , at 3 feet below  $138^{\circ}$ , and at  $3\frac{1}{2}$  feet the thermometer

rose to  $148^{\circ}$ . No self-registering thermometer was available to take the temperature of the liquid mud. The ordinary thermometer could not be cleaned quickly enough to get an accurate reading.

The island is evidently becoming hard, but the action of the sea and tide is washing it away considerably at present, leaving a wake of discoloured water, giving the appearance of a shoal spit. The Admiralty charts show that several mud volcanoes exist in the neighbourhood.

Drift-wood, sand, and stones were found, although the island was only fifteen or sixteen days old. Fourteen kinds of seed were collected by the surgeon naturalist, from whose geological report it appears that the island is composed wholly of greyish-brown mud of uniform quality throughout; with this are a few angular fragments of rocks of various kinds intermingled. These must have been thrown up with the mud; they include:—(a) portions of a laminated sandstone; (b) a compact grey rock which has the appearance of a limestone, but which is only partially soluble in strong acids; (c) lumps of crystalline calcite; (d) a soft green stone, probably a basic igneous rock.

On December 31, 1906, the surface was sun-dried and hardened, so as readily to support the weight of a man. The dried surface is very uneven throughout; it has a nodular and bubbly appearance; besides this, it is split up by deep fissures, due to shrinkage in drying.

On the north side of the island are several small vents. Three of these open into round pools of liquid mud, to the surface of which large bubbles of gas are continually rising. This gas is non-inflammable, and does not support combustion; it has an objectionable sulphurous smell.

In regard to the permanence of this island, considering the nature of the material of which it is composed it is likely that heavy rains and sea action in the south-west monsoon will cause rapid disintegration and total disappearance, always provided that no more material is erupted.

The following case may be quoted from Lyell's "Principles of Geology," vol. ii.:—In 1811 the Isle of Sabrina was formed off the Azores by submarine volcanic action. This, although 300 feet high, "was soon washed away by the waves."

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## The Forest-pig of Central Africa.

As will be remembered, the singular and interesting forest-pig, *Hylochoerus meinertzhageni*, which appears to be an intermediate link between the true Sus and the aberrant Phacochoerus was first mentioned and named by my friend Mr. Oldfield Thomas in these pages (NATURE, vol. lxx., p. 577, 1904). I believe, therefore, that some further information which widens considerably its range may prove of interest to readers of NATURE.

The type of this remarkable pig is the cranium of a nearly adult male from the Nandi country (E.N.E. of the Victoria Nyanza), sent home by Lieut. R. Meinertzhagen, and now in the British Museum; this, with parts of the skulls of an older male specimen and of a sow, with portions of the skin covered with long black hair of the first, are the materials on which Mr. O. Thomas has described this species (Proc. Zool. Soc. London, 1904, ii., p. 193, pl. xiv., xv.). Since then further materials have been received by the British Museum, also the skull of what appears to be a second species (Proc. Zool. Soc. London, 1906, p. 2).

The Royal Zoological Museum of Florence received a few months ago from Lieut. Ernesto Brissoni, an officer in the service of the Congo Free State, a perfect cranium of a large full-grown male of *H. meinertzhageni*, shot by him at Sendue, on the Upper Congo River, where he was stationed for many months in November, 1904. It is a remarkably big and massive skull, as will be seen by the principal measurements, which, to facilitate comparison, I give in the same order as those taken on the type-specimen by Mr. Thomas; they are in millimetres:—greatest median length, above 425; basal length, 360; zygomatic breadth, 250; nasals, length 260, breadth 70; interorbital breadth, 123; tip to tip of post-orbital processes, 155; intertemporal breadth, 98; breadth across