

Distance in feet at which the Army test-dots were distinguished	English agricultural and out-door labourers, age 16 to 45 years. No. of obs.	Solomon Islanders, age not stated. No. of obs.	English agricultural labourers, &c., age 21 years. No. of obs.
5 to 10	1	—	—
10—15	1	—	—
15—20	4	—	1
20—25	8	—	1
25—30	15	—	1
30—35	29	—	2
35—40	34	1	3
40—45	27	0	3
45—50	40	0	8
50—55	55	7	11
55—60	52	2	8
60—65	40	7	4
65—70	40	3	2
70—75	20	2	2
75—80	9	—	1
80—85	3	—	1
85—90	2	—	—
90—	5	—	1
Total	385	22	49
Average	52·1	57·5	52·5
Mean	55·0	55·0	52·5

* Mean or value of greatest frequency.

Mr. Guppy's figures are too few in number, and too irregular in their relation to each other and to the columns of figures on either side of them, to be accepted as representative of the range of vision of the Solomon Islanders, and he must have stumbled on some of the better examples, or else the short-sighted men have not presented themselves to him for examination. Nevertheless, taking the figures as they stand, they give no support to the belief that savages possess better sight than civilised peoples. Mr. Guppy gives 60 feet as the distance at which the test-dots were distinguished, but the average of his figures is 57·5 feet, or only half a foot more than Prof. Longmore worked out, from observations on British recruits, as the distance which the test-dots ought to be seen in good daylight. Judging from the run of the figures, I should place the so-called "normal" vision of the Solomon Islanders at 55 feet, or possibly at 52·5 feet, like the English labouring classes of the age of twenty-one years, as our figures representing that age are remarkably uniform in their distribution, and therefore near the truth. The average of the Solomon Islanders is, it is true, higher by 5 feet than the English in my table; but this is obviously due to the absence of observations on the less perfect-sighted individuals belonging to the former race. Even when the test is one of seeing objects at the greatest distance, the best savages are inferior to the best English by about one-third. Mr. Guppy evidently believes that the Solomon Islanders possess very superior sight compared with ourselves, especially for distant object; and Mr. J. A. Duffield, who read a paper recently, at the Anthropological Institute, on the natives of some adjoining islands, was still more firmly of this opinion; but it is obvious that the question cannot be decided by general impressions, nor by the result of comparisons with sight the value of which we are ignorant. Travellers naturally record cases in which their own sight (which they believe to be good, but which may be very bad) is outstripped by savages, but do not encumber their pages with negative evidence of the kind. Their mistake lies in confounding acuteness of vision with the results of special training or education of the faculty of seeing—results quite as much dependent on mental training as on the use of the eyes.

Bolton Row, Mayfair, April 13

CHARLES ROBERTS

Far-sightedness

ALLOW me to corroborate the report of your correspondent, whose letter appears in NATURE of April 2 (p. 506) as to the visibility of very distant terrestrial objects. In the spring of 1837 I was travelling from Rome, northwards, by "Vetturino," and from the summit of the Apennine on the road between Florence and Bologna, I saw, with astonishment, the whole range of the Swiss Alps, not merely distinguishable but conspicuous. Measured on the map in a direct line the nearest

part of the range was distant about 200 miles. The extreme portions, including Mont Blanc, were considerably more. I have no doubt that the atmospheric conditions were unusually favourable. For when I asked the Vetturino what mountains they were, he, having often passed that way without seeing them, said they were nothing but clouds. I told him that I knew a snow mountain when I saw it; and as a peasant, living on the spot, shortly passed, I renewed my inquiry—to which he immediately answered, to my surprise, that they were the mountains of Switzerland.

J. HIPPLEY

Stoneaston, April 7

ON September 3, 1874, from the Piz Muraun, near Dissentis, I saw the white dome of Mont Blanc, distant about 110 English miles. As the Piz Muraun is only about 9500 feet I was sceptical, till a reference to maps showed a line of intervening depressions. I feel sure that some Alpine tourists will be able to furnish Herr Metzger with cases of mountains identified at distances vastly exceeding this of mine.

E. HILL

Cambridge, April 8

The Pupil of the Eyes during Emotion

IN connection with the above subject the following experiment may be of interest to your readers. It is one I made many years ago when studying the border-land between physiology and psychology. At that time I showed and explained it to a number of my friends.

In this experiment it appears to the observer as if I had control over the muscles of the iris, as I can make the pupil of the eye large or small at will. Placing myself in front of, and looking towards, a window or other bright light, the observer is desired to watch the pupil, and say when to contract or expand it. On the order being given, the pupil is seen to expand or contract as desired. This experiment can be easily made by any one in the following manner:—The eye is directed towards the light and a point looked at, the eye being kept steady during the whole experiment. Under these conditions the bright light causes the pupil to contract automatically, and when desired to expand it all that is necessary is to take the attention away from the eye and fix it on some other part of the body—say, by biting the tongue, pinching the arm, &c. By these means the sensitiveness of the retina is, for well-known reasons, reduced, and the pupil automatically dilates. To cause it again to contract, the mind has simply to be recalled to the eye and attention given to the visual impressions.

This experiment supports the explanation given by Dr. Herdman in Mr. Clark's letter in NATURE, vol. xxxi. p. 433, and also the explanation given by Dr. Wilks at p. 458. When the mind is under the influence of fear, the energies are diverted from the eyes and the pupils dilate on account of the reduced sensitiveness of the retina. While in anger, sight being powerfully called into action, the sensitiveness of the retina is increased and the pupil automatically contracts, so that generally we might expect that during those emotions in which the eyes are called into action the pupils will be small, and that when the nervous energies are directed away from the eyes to other centres, the pupils will be large.

JOHN AITKEN

Torquay, April 8

Notes on the Geology of the Pescadores

DURING a stay of two days in Making Harbour in 1877, I collected a few notes on the geology of this small group, which has, from its recent occupation by the French, been brought before the notice of the public. These islands, which were briefly described in the last number of NATURE (p. 540), have a characteristic appearance, being flat-topped, 100 to 200 feet in height, and presenting a rather barren aspect from the scarcity of trees and shrubs. Dampier, who visited them in 1687, described them as "much like our Dorsetshire and Wiltshire Downs," producing "thick, short grass and a few trees," a description equally applicable at the present day.

As far as I could ascertain, the whole group was of basaltic formation, the columnar structure being well developed, columns 30 to 40 feet high being observable in the faces of some of the cliffs. In the places I visited the cliffs were built up of two basaltic streams superimposed, the two masses towards their junction being scoriaceous and amygdaloidal, and separated by a layer three inches thick of a red, soft rock or laterite. The

cavities of the vesicular parts of the rock were often filled by calcite or hæmatite.

The apparent absence of any cone or tuff deposit, the compact and columnar structure of the rock, and the vertical position of the columns, seemed to show that the whole had been originally one continuous sheet of submarine lava-streams, which had been subsequently elevated and cut up by the waves into the several islands—a conclusion which was supported by two other circumstances: the form of the islands and the shallow intervening depths (6 to 9 fathoms).

It is noteworthy that several of the islands sloped away gradually west-south-west to south-west, a direction coinciding with that of the submarine slope in this part of the Formosa Channel. From this circumstance it would seem that the succession of lava-streams flowed in a south-west direction, and that their source lay in the north-east portion of the group.

17, Woodlane, Falmouth, April 11

H. B. GUPPY

A New Bird in Natal

SOME months ago, Mr. Ferreira, a member of my congregation, informed me that he had shot some time previously a bird in the early morning which neither he nor any of his neighbours had seen before. From his description of it I concluded that it probably belonged to the goat-suckers, and on examination of the skin I find that the supposition is correct.

A day or two ago he brought the skin to me: it had been stretched against the wall of his room to display its plumage to the greatest advantage. The measurements which I give cannot therefore be perfectly accurate. One of its long plumes has been broken by a pellet, but otherwise the skin is in tolerably good preservation, and I trust that it may be well stuffed and set up, for the bird is certainly not mentioned in the first edition of Layard's "Birds of South Africa," nor yet in any of the books or catalogues in my possession, and the bird is in itself so very remarkable that one cannot help thinking that it would have been described in the books I have had it been known. I will deposit the skin in the Natal Museum, Pietermaritzburg. The bill is that of a goat-sucker, strongly fenced with strong hairs. The length of the body from tip of the bill to the insertion of the tail is 6 inches; length from tip of bill to tip of tail, 11½ inches; length between tips of wings—probably stretched too much—24 inches.

The colour is the usual brown of the family—bars on the tail of brown black, and mottled bars of light and dark brown; feathers, eight in number, the longest on the outside of the tail.

Wings: Primaries, 9 in number.

Length of the 1st feather, 7½ inches.

„ 2nd „ about an inch shorter.

„ 3rd „ shorter than second; the following three about the same length as the 3rd.

Length of the 7th feather, 7½ inches.

„ 8th „ 11½ „

„ 9th „ 27½ „

The first seven of the primaries are tipped with white, the 2nd and 3rd rather broadly, the 1st scarcely. The 8th becomes greyish towards the tip, and the ribs of the 7th and 8th are brown, while the others are black. Two-thirds of the length of these feathers are black; but a band of white, narrower on the first and increasing to about 3 inches broad on the 8th feather, extends along the roots and middle of them, and crosses over to the 9th long feather, which, for 21 or 22 inches, is of a dullish silver-gray. The secondaries are tipped with white, with the exception of the 1st and 2nd, which only give indications of being so; they are generally black-brown, with markings of light brown. There is a reddish ring around lower back part of the neck.

The breast is light gray, generally with light brown markings in bands.

Its feet are those of a goat-sucker, but on comparing the foot of the *Cuprimulgus europæus*, as drawn by Van der Hoeven (vol. ii. plate 7, Fig. 9, ed. 1858) I find the teeth of the comb of the middle toe much broader and stouter than that of the former. There are only four teeth, with a smaller or false one at the root of the nail. The length of the nail is about one-eighth of an inch, and the breadth of tooth is therefore about one-sixteenth of an inch.

This bird is evidently very closely related to the pennant-winged night jar, or long-shafted goat-sucker (*Macrodipteryx africanus*); but the markings are very different, and the long-shafted feathers

are not more than 17 inches long, while those of this bird are more than 27 inches in length, and they do not display any inclination to form a long naked shaft, but are clothed or webbed on both sides from the root to the tip.

It is very singular that this bird should only have become known in this district in 1884. The farmers are close observers, as also are the Kaffirs, but no one has ever seen it. It is the more singular since it was shot on a farm that has been long occupied, and that by a farmer who in his younger days was accustomed to help collectors of birds for our European museums. Perhaps the long and severe droughts, said to prevail this year in the interior, may account for its presence in Natal.

JAMES TURNBULL

Pastorie, Grey Town, Natal, March 2

C. T. E. VON SIEBOLD

CARL THEODOR ERNST VON SIEBOLD was born at Würzburg, in Bavaria, on February 16, 1804. His brother was the well-known traveller and philologist. Carl was brought up chiefly, under the superintendence of his father, for the medical profession, and he carried on a practice for a few years as a physician at Heilsberg and Königsberg. In 1835 he received the appointment of Master of the Lying-in Hospital at Dantzic. Early in his life he showed an interest in zoology, and in 1840 he removed from Dantzic to Erlangen, where he taught comparative anatomy, zoology, and veterinary medicine. In 1845 he was appointed Professor of Zoology at Friburg, and shortly afterwards he made a prolonged sojourn on the Adriatic. At this time he worked with immense zeal and ardour at the anatomy of the marine invertebrates, and as the result of this work and his lectures combined he commenced the elaboration of his well-known "Lehrbuch der vergleichenden Anatomie der Wirbellosen Thiere." In his preface to this work, which has been translated into English and French, he insisted on the importance of a knowledge not only of the minute anatomy but also of the developmental stages of the forms described. Generous aid in the completion of this at the time most excellent treatise was given to him by C. Vogt, H. Stannius, A. Krohn, H. Koch, and A. Kölliker, and in 1849 he founded, in connection with the last-named of these eminent biologists, the *Zeitschrift für wissenschaftliche Zoologie*, a journal which has ever held a leading position among the scientific publications of our day, and one which is still known and esteemed wherever zoology is studied.

In 1850 von Siebold was appointed to the Professorship of Physiology in the University of Breslau, and also received the charge of the Physiological Institute of that city.

In 1853 he was appointed Professor of Zoology and Comparative Anatomy in the University of Munich, and Director of the Zoological and Zootomical Cabinet in that city. These positions he filled during the remainder of his life.

Shortly after his appointment to the Munich Professorship he commenced an elaborate series of investigations into the vexed question of "Parthenogenesis," entering on the subject with a belief that facts had been misunderstood; and his treatise on this phenomenon, as found by him to actually exist in bees and moths, was a genuine contribution to science. This work was published at Leipzig early in 1856, and was translated by Mr. Dallas the following year into English.

Somewhat earlier in date he published a memoir on "Tape and Cystic Worms, with an introduction on the Origin of Intestinal Worms," which was deemed worthy of being translated into English, by Prof. Huxley, for the New Sydenham Society. The good that this translation effected by introducing some scientific facts to the notice of our medical men it is not easy to calculate.

In 1858 the Royal Society elected him as one of their honorary members. In 1867 he was made a correspond-