1820. This *Beagle* was sold, by public auction, to Messrs. Murray and Trainer, for 540*l.*, in May, 1870, having for some years previously served as watch vessel at Southend.

"The next vessel of the name was a first-class gun vessel (screw), built at Blackwall in 1854 and carrying 4 guns. This vessel was serving on the East Indies and China Station in 1862, and in the Navy List of that year is shown as 'ordered home'; but in the following year she disappears from the list, and in Parliamentary Paper No. 560 of Session 1867 ('Navy—Ships sold') she is entered as 'sold abroad' in 1863, for 5500*l.* Inquiry has been made of the Contract and the Accountant-General's Department as to whether she was bought by the Japanese, but no information on this point is available, all such records of the period having been destroyed. Doubtless, however, this is the *Beagle* to which the inquiry refers.

"The following are the dimensions of the respective ships:—

	<i>Beagle</i> built in 1820.			<i>Beagle</i> built in 1854.		
Tons	...	...	235	...	...	477
Length—						
Gun deck	...	...	90	...	...	160
Keel for tonnage ...	...	...	73'7 $\frac{1}{8}$	...	...	143'4 $\frac{1}{2}$
Breadth, extreme ...	...	...	24'8	...	...	25'4
Breadth for tonnage ...	...	...	24'6	...	...	25
Depth in hold	...	...	11	...	...	13'3
Light draught—						
Afore	...	...	7'7	...	...	5'10
Aft	...	...	9'5	...	...	8'1

"Initialled W. E. S., 15.12.09."

F. P. PURVIS.

Engineering College, Tokyo Imperial University
of Japan, May 9.

Distant Orientation in the Amphibia.

ROMANES, in his book on "Animal Intelligence," suggests that frogs have a distinct idea of locality, and he also expresses the opinion that frogs are able to perceive moisture from a great distance. One of his correspondents found that frogs removed from their habitual haunts for 200 or 300 yards returned to them again and again. Romanes quotes Warden, who, in his "Account of the United States," says that when a pond containing a number of frogs dried up, the animals "made straight for" the next water, though it was 8 kilometres away. During the spring of 1910 I made a series of experiments, which have been continued this year, with the view of settling how newts are able to find their way back to water when they have once left it or have been removed from it. Working with the Palmate newt (*Molge palmata*, Schneid.), I got no evidence of a faculty for the perception of moisture at a distance, and in order to explain the spring migrations of the newt it is unnecessary to presuppose its presence, because I certainly think there is a small homing faculty. My results directly point to this. Romanes gives no details, and more information on this question would be welcomed before I draw up a full account of the experiments. The subject has an important bearing on the psychology of the Amphibia, and must form when elucidated an interesting chapter in their natural history; yet the reference in Romanes is the only one I can find.

BRUCE F. CUMMINGS.

Cross Street, Barnstaple, N. Devonshire, May 14.

A Zenith Halo.

WITH reference to Mr. Gold's letter in your issue of May 11 concerning the halo observed by Mr. Kreyer, I should like to make the following remarks. I think Mr. Gold is quite right in assuming that the phenomenon observed was the so-called arc of contact of the halo of 46° radius, which for this altitude of the sun is really almost in contact with that halo, whereas, according to Bravais's theory, supported by numerous observations by Ekama and Besson, for lower altitudes these arcs may be separated by as much as 7° (with the sun at the horizon even 12°). But I think Mr. Gold is mistaken in assuming that the centre was at 80°, or 85° altitude.

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Mr. Kreyer's observation that the arc formed part of a circle with the zenith as apparent centre is quite in harmony with Bravais's theory and the numerous observations in our country. Even Pernter, who accepts Galle's theory, besides that of Bravais, does not bring conclusive evidence of the existence of arcs in the same altitude with their centre outside the zenith. It is much more probable that Mr. Kreyer's estimate of 10° or 15° has been too low, as is usually the case with the estimates of arcs near the zenith, and that the real radius was about 20°.

These circumzenithal arcs are not of so little frequent occurrence as one might think from Mr. Gold's letter. Messrs. Besson and Dutheil have observed them at Montsouris 111 times in the course of ten years, and the Dutch staff of voluntary observers sixty-seven times in the same period.

In recent years the observations have been even more numerous in our country. The period 1904–8 gives fifty-five days with observations of circumzenithal arcs; 1904, even thirteen observations by one and the same observer. Perhaps the high altitude of the halo is the reason why it is rarely seen by unskilled observers.

E. VAN EVERDINGEN.

Meteorological Institute, De Bilt (Holland).

THE object of my remarks on Mr. Kreyer's observation was to make it clear that the phenomenon belonged to the class due to refraction through ice-crystals. For that purpose the exact position of the centre of curvature of the arc was immaterial, and in the absence of accurate measurements an altitude of 80° to 85° was sufficiently near the observer's estimate of 90°. Dr. van Everdingen suggests that the radius of the arc may have been 20° instead of 10° to 15° as estimated by the observer. I agree with him, and indeed I thought of suggesting this in my notes, but it seemed just as likely that Mr. Kreyer had made a slight error in estimating the altitude of the centre, and I did not regard the matter of sufficient importance to call for a discussion of the alternatives.

The interest of observations such as those of Mr. Kreyer, where the positions and distances are estimated only, does not rest on the support which they may give to the theory of Bravais or to that of Galle, but now that Dr. van Everdingen has reopened this question, I am sure meteorologists would welcome from him a discussion of the two theories in the light of the more extensive observations to which he refers, which no doubt contain the measurements necessary to prove or disprove the horizontality of the arc.

E. GOLD.

Meteorological Office, South Kensington,
London, S.W., May 20.

The Yale.

THE animal upon which Prof. Hughes has based the sketches published in NATURE of May 25 (p. 415) is evidently the typical, or white-tailed, gnu. But this is a South African species, the northern limit of which is formed approximately by the Vaal River. How, then, can it represent an animal the home of which was supposed to be Ethiopia? The brindled gnu of East and North-east Africa has horns of an entirely different type. I may add that if Prof. Hughes can definitely identify "the antelope" he will perhaps kindly communicate his information to those who are less fortunately situated in this respect than himself.

R. L.

Apple Blossoms.

THERE is a theory that the retardation of the flow of sap tends to the production of fruit as against wood buds, and this retardation for apple and pear trees is effected in various ways—by root-pruning, cutting of the bark, for example.

Now last year the want of sunlight, I think, tended to weaken the vitality of trees, and so tended to retard the flow of sap. Should we not, then, expect this year to find an excess of fruit buds? The "show" of apple blossom round us, in Gloucestershire, is exceptionally profuse.

F. C. CONSTABLE.