

"Mimicry" in Birds

If Mr. Young will look at the fourth edition of Yarrell's "British Birds," he will find that the fact he mentions (*ante*, p. 486) has already attracted notice, for he will there read (vol. i. p. 616) :—

"In places near Thetford, where the ringed plover is common, skylarks often imitate the note of that bird, making it part of their own song."

ALFRED NEWTON

Magdalene College, Cambridge, April 19

OUR starlings here, which are a numerous and accomplished colony, have acquired the following notes of other birds :—Curlew, red-shank, blackbird, thrush, magpie, swallow, swift, chaffinch, house sparrow, hedge sparrow. The most successful imitations are those of the curlew, red-shank (the note uttered by the latter on taking wing), and the swallow. I have several times this year been certain that I heard a swallow twittering on the house-top, and found that the note proceeded from a starling.

The jays also in this neighbourhood, which are very plentiful, are very able mimics; the note of the carrion crow is about their most successful effort.

H. II. S.

Riding Mill-on-Tyne, April 22

The Westinghouse Brake

UNDER the heading, "Notes," in NATURE, vol. xvii. p. 140, there is a paragraph describing the automatic brake of the Westinghouse Brake Company, St. Stephen's Palace Chambers, Westminster, the latter part of which refers to a ball which performs certain functions under different circumstances. In a previous account in the *Times*, three balls are mentioned as being used in the experiment; it also states that several gentlemen were investigating the mathematical principles under which these functions fell. I have not seen any results of their work, neither is there any comment upon it in NATURE. I therefore take occasion to mention it, in order that if any account of it has passed me, I may be informed of it, or that, if no results have appeared, this may lead to the subject being investigated by some of the mathematical correspondents of your esteemed paper.

G. O. K.

Sound and Density

SINCE velocity of sound does not vary with *density* (Balfour Stewart, Chap. IV., "Elementary Physics"), would you kindly state the answer that should be given to the question, *Why does sound travel quicker in water and wood than in air, and what is the relation between density and velocity of sound in water, wood, air?*

J. CAMERON

The Academy, Montrose, April 18

[The velocity of sound depends on the ratio between the mass and the elasticity, and in air (to which Prof. Stewart refers) it does not vary with the density of the air if its temperature only remain constant. In this case the denser the air the greater the mass, but the greater the elasticity in the same proportion. The ratio between mass and elasticity is thus unaltered, and therefore the velocity remains under these conditions the same.—ED.]

OUR ASTRONOMICAL COLUMN

THE TRANSIT OF VENUS IN 1882.—In addition to independent calculations of the circumstances of this phenomenon, founded upon Le Verrier's tables of the sun and planet, to which reference has already been made in NATURE, we have to record the publication of two memoirs upon the same subject, the first by Herr Bruno Peter, who is attached to the Observatory at Leipsic, the second by Dr. Karl Friesach, of Graz, which has been received within the last week. As was to be expected where practised calculators are working upon the same data, the direct results from the tables are in very close accordance with those previously published; indeed the advantage of so many repetitions of such work is not very evident. The differences which the calculated times of the geocentric contacts exhibit are almost wholly due to the employment of different semi-diameters of sun and

planet. Le Verrier suggested (*Annales*, vol. vi. p. 40) that for the present the values to be employed should be respectively 958".424 and 8".305 for the mean distance. Herr Peter has used 961".21 and 8".472, and Dr. Friesach, 960".0 and 8".305. Their results for Paris mean times of contacts and least distance of centres are subjoined :—

Transit of Venus, 1882, December 6.

	PETER.			...	FRIESACH.		
	h.	m.	s.		h.	m.	s.
First external contact	2	4	21.4	...	2	4	52.8
" internal "	2	25	3.9	...	2	25	11.6
Last internal "	8	1	56.5	...	8	1	42.6
" external "	8	22	39.0	...	8	22	1.6
Least distance of centres	5	13	29.9	}	5	13	27.3
			64".7				64".5

ENCKE'S COMET IN 1878.—Observers in the southern hemisphere may be reminded that this comet is likely to be a pretty conspicuous telescopic object in their evening sky, in the first days of August: According to Dr. von Asten's latest researches on the motion of this comet, the period of revolution at the last perihelion passage was 1200.8 days, which, without taking any account of perturbations (not likely to be very material during the present revolution), would bring it again to perihelion on July 27. Mr. Tebbutt, of Windsor, N.S.W., has once found Encke's comet without assistance beyond his own calculations, but it will probably be Dr. von Asten's intention to furnish southern observers with a reliable ephemeris commencing with August next. Observations will not be practicable before the perihelion passage, the comet being too near to the sun's place.

THE "BERLINER ASTRONOMISCHES JAHRBUCH" AND THE MINOR PLANETS.—The volume of this ephemeris for 1880 has just appeared under the joint editorship of Professors Förster and Tietjen. The general contents are similar to those of preceding volumes. The ephemeris of the moon is again transferred, with full acknowledgment from the *Nautical Almanac*, and a great amount of labour of computation is thereby saved, which is made to tell upon the speciality of the work, the preparation of ephemerides of the small planets as far as their orbits are sufficiently determined. The reader who may be in search of the elements of these bodies will find in this new volume of the *Berliner Jahrbuch* the most complete and reliable table yet in the hands of astronomers. It includes orbits of all the minor planets to No. 172, with the exception of No. 155, *Scylla*, for which the necessary materials for calculation are wanting; and while referring to *Scylla*, it may be remarked that the four observations on November 8, 9, 22, and 23, 1875, cannot be represented by an elliptical orbit, which raises a suspicion that those of November 8 and 9 may belong to one planet, and those of November 22 and 23 to another, not, so far, recognised in the list. On examining the table of elements it is seen that No. 153, *Hilda*, has by far the longest period, while No. 149, *Medusa*, is credited with the shortest, according to the calculations of Prof. Tietjen. The observations of *Medusa*, however, extend over a period of eight days only, but they appear very exact, and it has happened that from a similar short interval of accurate observation, very close approximation to the true elements of an elliptical orbit has been attained; we may especially note the case of the short-period comet of De Vico in 1844: from eight days' very precise observations, M. Faye deduced an orbit which, as was pointed out by Prof. Brünnow, was almost identical with the result of his own elaborate investigation of the elements from the whole extent of observation. It is unfortunate that *Hilda* has escaped observation at the last opposition, since of all the small planets it is most desirable to keep this one in view, from the fact of its orbit allowing of a very much closer approach to the planet Jupiter than is possible in the case of any other.

The best orbit is by Kuhnert, but it is probable that the want of observations in 1877-78 is not wholly attributable to errors of elements, but in a certain degree to the position of the planet at a considerable distance from the ecliptical belt of the sky for which charts of small stars are as yet published, and, in addition, to its faintness. *Medusa*, which appears to have a very small inclination, may possibly be recovered in the ensuing summer.

GEOGRAPHICAL NOTES

TASMANIA.—The prospects of Tasmania are reported to be improving, owing to the development of its mineral resources. Very large quantities of tin, as is well known, have been discovered at Mount Bischoff, and quite recently the vast tract of country to the north-west, which has always been looked upon as valueless, has been explored with more care, and though it is probably of little use for agricultural purposes it has been found to contain enormous quantities of iron and other minerals. Traces of gold have been met with in the beds of some of the rivers, and copper has also been found. In the dense forests which are common in this region specimens of the *Eucalyptus* have been seen which are said to be more than 300 feet in height. Further exploration is still being carried on with a view to the accurate determination of the capabilities of this part of Tasmania.

AFRICAN EXPLORATION.—Journalistic enterprise is again contributing to the exploration of Africa, and this time Paris is vying with London and New York. M. P. Soleillet, who has been equipped under the auspices of the *Moniteur Universel*, departs soon for a tour of exploration in Equatorial Africa, to follow in the footsteps of his fellow-journalist Stanley. The development of openings for French commerce is to form a prominent feature in the undertaking.

PARIS.—The Paris *Société de Géographie* has elected Baron de la Roncière Le Nourry its president for the ensuing year.

FRENCH GUAYANA.—Dr. Crevaux, who was sent out by the French government to explore the interior of French Guayana, has returned to Paris after completing one of the most arduous journeys in the annals of South American discovery. After having fulfilled his instructions to penetrate to the Tumuc-Humac range, he determined to make the passage of these mountains, and descend into the valley of the Amazon, an attempt which has several times been tried in vain during the past three centuries. Although deserted by all his attendants, with the exception of a negro, he succeeded, after overcoming numerous obstacles, and battling with famine during a march of sixteen days across an uninhabited tract, in reaching the head waters of the Yary, from whence a canoe-voyage brought him to the Amazon. Of the 500 leagues traversed in this journey, 225 were hitherto completely unknown.

SURVEY OF NEW YORK.—The Second Annual Report of the State Geographical and Topographical Survey of New York, in charge of Mr. James T. Gardner, gives an account of the labours of the commission during the year. The principal work of the year has been the precise determination by primary triangulation of points in eleven counties, embracing an area of about 3,000 square miles; 167 points were located in an area of 1,700 miles in seven counties alone; the average has been one to every ten square miles. Fifty-one monuments have been placed in defining the boundaries of counties, this being a very important part of the work of the survey. The report is accompanied by several maps showing the progress of the work, the position of the stations, &c.

BIOLOGICAL NOTES

A NEW FRUIT.—Mr. Hollister has introduced from Japan to San Francisco a fruit, which is said in its native country to have as many varieties as are grown in this country of our apple, and the sweetness of the fruit is more or less retained by all of them. It is known as the Japanese Persimmon and, according to Mr. Hollister, is the most beautiful of all the fruits he had ever seen and the most delicious to the taste—four of the fruits which ripened with him weighed three quarters of a pound each, they were of a rich yellow colour, and looked like balls of wax; these were pronounced equal to a good pear or peach. The tree is a highly ornamental one, a prolific bearer, and as hardy as a pear. Its fruit season is from October to March. It seems quite adapted to the soil and climate of California. The grafted trees bear in four years. The seedlings require double that time, and are not reliable (*Proceedings, Acad. of Science, California, in American Naturalist* for March, 1878). This is the well-known and beautiful fruit of *Diospyros kaki*, Linn., fil., a near ally of the Persimmon of the Southern United States of America. Mr. Hiern tells us in his Monograph of the Ebenaceæ that the Chinese preserve this fruit with sugar, and that it has for a long time been in cultivation with them and the Japanese. The fruit has a thin skin, with a sweet orange-scarlet coloured flesh, with six or eight dark smooth seeds. It was beautifully figured in the *Gardeners' Chronicle* for 1872.

FOSSIL INSECTS.—Messrs. S. H. Scudder, of Cambridge, and F. C. Bowditch, of Boston, attached to Hayden's United States Geological and Geographical Survey, spent two months in Colorado, Wyoming, and Utah, in explorations for fossil insects and in collecting recent coleoptera and orthoptera, especially in the higher regions. They made large collections of recent insects at different points along the railways from Pueblo to Cheyenne, and from Cheyenne to Salt Lake, as well as at Lakin (Kansas), Garland and Georgetown (Colorado), and in various parts of the South Park and surrounding region. Ten days were spent at Green River and vicinity in examining the tertiary strata for fossil insects, with poor results. The tertiary beds of the South Park yielded only a single determinable insect; but near Florissant the tertiary basin described by Mr. Peale in one of the annual reports of the Survey was found to be exceedingly rich in insects and plants. In company with Rev. Mr. Lakes, of Golden, Mr. Scudder spent several days in a careful survey of this basin, and estimates the insect-bearing shales to have an extent at least fifty times as great as those of the famous locality at Eningen in Southern Bavaria. From six to seven thousand insects and two or three thousand plants have already been received from Florissant, the specimens from this locality being remarkable for their beauty. There is every reason to believe that the tertiary strata of the Rocky Mountain region are richer in remains of fossil insects than any other country in the world, and that within a few months the material at hand for the elaboration of the work on the fossil insects of the American tertiaries which Mr. Scudder has in preparation, will be much larger than was ever before subject to the investigation of a single naturalist. Mr. Scudder has in all now more than 12,000 specimens of fossil insects.

THE CLIMBING OF THE VIRGINIA CREEPER.—Mr. B. D. Halsted has studied the mechanism of climbing in the Japanese Ampelopsis, and finds that the clinging discs terminate tendrils which are homologous with main stems. While approaching a support, these discs flatten themselves on the inner side. The surface of the disc is papillose, and excretes a sticky substance; and the irregular contraction of the tendril draws the vine to its support (*Proc. Boston Soc. Nat. Hist.*, January, 1878).