en route to St. Augustine's Bay: "As we drew near to Vólotarà River and town, I noticed a fetish tamarind tree that calls for a little notice. The tree itself is one of the largest in the neighbourhood, and is a notable object when viewed at a distance. The whole aspect of it strikes the stranger at once; its bell-shaped crown, and its branches reaching to the ground being particularly noticeable. I found on close examination, that its trunk divides into two a few feet from the ground; the diameter of its shade is 81 feet, and its branches torch the ground all round the circle. Through its branches there are other trees growing, seeking the sun through its dense foliage; some of these trees are quite a foot in circumference, and there are creepers clinging to them. So that the tree is a miniature forest in itself. The cool shade beneath its branches was most welcome. About a foot from the double trunk a trench encircling the tree has been cut in the sandy soil. This trench, or gutter, is about six inches deep, a foot broad, and is swept most scrupulously clean by some one, and the ridges on each side are patted down so that the sand may not fall into the gutter.

"On the raised earth between the gutter and the trunk of the tree are laid small baskets, mats, fan-palm leaves, locks of hair, &c., &c., and on the surrounding branches similar articles are hung, evidently placed there in making a vow, or as a thank-offering for some benefit, but what I could not tell. The tree is some hundred yards from the town, and when we arrived and inquired about it, no one knew (?) anything of there being such a tree. . . .

"The tamarind trees are apparently held in reverence by the Tanösy as well as by the Bara, and at some little distance from Rabôdo's compound, at Kiliarivo, there is a very fine specimen of a fetish tree, to which they gave the name of Zanahary. It is surrounded by a very high fence of prickly pear, and the narrow passage to it had been made impassable by cutting from the fence portions of the thorns and strewing them across the path."

Following is the translation by Mr. Jas. Sibree, jun., L.M.S., from an account by a Hova officer, who commanded an expedition against the Sakalavas in 1873:—"Before coming to this village we saw other things of a similar kind, for there is a certain tree they call 'Botóna,'¹ and in this tree there is some part considered as specially belonging to God. So they put on it a small mat about a hand-breadth in width, and they take long dry grass and twist it together, and hanging an ox-skull to the tree, they colour the tree with lines of charcoal and white clay and some yellow substance resembling turmeric, and then pray and render adoration before it. And many are the charms they place on the tree, fastening them to it, and every charm has a name peculiar to it. These are some of them: one is called 'Road-stopper,' another 'Raising up at a distance,' and another 'God's banner,' . . . In another direction which we took we saw some villages with a great many trees growing round them, and the largest tree which grew near the gate had a figure of a woman fixed to it, and ornamented with charms. We asked the meaning of this, and were told, This is the tree of adulterous desires, for here those pray who want women or are about to marry."

I may add that Mr. Richardson, mentioned above, with his wife and family, have lately landed in England, per steamer *Agra*, from Madagascar. It is greatly to be hoped that the reverend missionary will give a detailed account of his adventurous journey to the south-west coast. S. P. O.

The Theory of Hailstorms

WOULD you kindly allow me the space in the columns of your valuable journal to make a few remarks on this subject? Before proceeding, I would like to mention three results of observations on hailstorms in general. It has been observed (1) that they move over the country in sharply-defined bands; (2) that these long bands have their origin or source in mountainous regions; and (3) that the air, previous to the occurrence of the storm is frequently hot and sultry, and that when it has passed, the wind feels sharp and cold.

Theorists admit that the generation of hail seems always to depend on some very sudden introduction of an extremely cold current of air into the bosom of a quiescent, nearly saturated mass. Now, bearing in mind the above-mentioned facts, does it not seem probable, or at least possible, that hailstorms may be

¹ Botóna, or Bontóna is the Baobab, or monkey-bread tree (*Adansonia digitata*).

caused by a current of wind which has been forced over snow-covered mountains, and thus rendered extremely cold, descending into the warm plains beneath, and forcing the hot and saturated air resting thereon, into the higher regions of the atmosphere, where the moisture would become congealed into a cloud of ice particles, the condition required for the beautiful theory of the formation of hailstones of Prof. Osborne Reynolds? This would account for the great frequency of hailstorms in Southern France, which country is subject to the influence of both the Alps and the Pyrenees. The above conditions, viz., snow-covered mountains and warm plains, could only occur in this country in winter and spring, and it is found that the greatest proportion of our hailstorms are experienced in these seasons.

I do not here enter into details. Should the theory be considered admissible, I hope on some future occasion to give the results of a full investigation of the subject, with my arguments in support of the foregoing opinion. J. A. B. OLIVER

Springburn, near Glasgow, September 29

Underground Tides

MENTION is made in NATURE, vol. xx. p. 401, of a spring in the Dux coal mines, Bohemia, exhibiting ebb and flow similar to tides. May not this be due to a subterranean syphon, acting precisely as a Field's flushing tank would in a house drainage system? Mention of such springs is made in Silliman's "Principles of Physics." We have in our neighbourhood not far from the Mammoth Cave a surface pool about 50 feet in diameter exhibiting this apparent tidal action. The pool is situated in the cavernous limestone country that forms such a large portion of our state, and is only a few hundred yards from Green River, whose peculiarly tinted waters it closely resembles. There is but little doubt that the river furnishes it with water until a level is reached, bringing one of the numerous underground conduits in the limestone into action, when the pool ebbs.

Louisville, Ky., U.S.A., October 9 MORRIS B. BELKNAP

The Uses of Tails

A VERY important function of the tail of the yak, cat, squirrel, and many other animals, to which I drew attention some years ago, has escaped the notice of Prof. Mivart. It is that the bushy tails of these animals serve a very important function in preserving their body-heat during their nightly and their wintry sleep. In cold weather animals with bushy tails will be found lying curled up with their tails laid carefully over their feet like a rug, and with their noses buried in the fur of the tail, which is thus used exactly in the same way and for the same purpose as we use respirators.

I have a Manx tailless cat, who cannot, of course, carry on this function, but he makes a very good substitute for it by using the back of one of my other cats. When he cannot be so accommodated, he sleeps with his hands crossed over his face, "just like a Christian," as my cook says. LAWSON TAIT

OUR ASTRONOMICAL COLUMN

BINARY STARS.—Dr. Doberck, of Col. Cooper's Observatory, Markree Castle, Sligo, continues his interesting investigations on the orbits of the revolving double stars, and now gives a first approximation to the elements of O. S. 298, which, since the first measures by Mädler in 1843, has advanced upwards of 135° , the distance, meanwhile, diminishing from about $1\frac{1}{4}''$ to $0''\cdot3$; the passage of the periastræ is fixed to 1881·76, and the period of revolution assigned is 68·8 years. It may soon be possible to infer approximately the elements of several other binaries as μ Herculis, O. S. 518, the duplicity of which was detected by Herschel in 1783, and which has special claims to the attention of the observer, from its evident physical connection with the rapidly-moving star 40 Eridani (one, by the way, that Mr. Gill intends to attack for parallax), and No. 298 of M. Otto Struve's catalogue. In a new orbit of Σ 3062, by Dr. Doberck, the period is 102·94 years; periastræ 1835·5.

THE SATELLITES OF MARS.—Mr. Marth has published data for facilitating the calculation of the positions of *Deimos* and *Phobos* (*Ast. Nach.*, No. 2280), including for