

ward. One island which is about the size of Jamaica, has a fringe on one side and an extensive barrier on the other. Shells and coral have been found at great heights, and there are many evidences of upheaval. One small island, called Vatu Leile, appears to be raised on one side and depressed on the other; the raised coast is lined with a fringe-reef, the submerged by a barrier.

In the Lau group, there are two fine barrier reefs—those of the Exploring Isles and the Bukatatanoa. Inside the lagoons of these and other reefs, there are an infinity of coral banks with various depths of water over them, many being mushroom-headed.

The prevailing wind throughout the Fiji group is east-south-east. Unquestionably the coral is in most vigorous growth where there is the most violent surf; and no matter what the current, it is in least vigorous growth on the lee or north-west side.

I believe that it is not inconsistent with the theory put forward by Mr. Darwin that, in the same group, some islands should be rising and some falling at the same time; nor that an island should have fallen to a certain level and have then undergone a movement of upheaval. If this be so, there is nothing, as far as one can see, in the Fiji group which disproves subsidence as the origin of barrier reefs. The questions which I desire to ask are these:—

How does Dr. Guppy account for the remarkable similarity in many instances in this group, between the shape of the barrier reef and that of the coast of the island within it? As examples, I would point to the islands of Nairai and Ngau, and to the correspondence in form between the north-east horn of the barrier of the Exploring Isles and the nearest cape of Vanua Mbalavu with its off-lying islets.

In the case of the Bukatatanoa reefs, how does he account for this great rim being all much on the same level, except by the supposition that it commenced its growth on the same contour? or for the cleanly-cut ship channels which occur on the *weather* side of some of the barriers, except by the supposition that the growth was originally checked by the streams from the land?

It is, I believe, universally admitted that there are large areas of elevation—such, for instance, as the New Hebrides—and corresponding areas of depression. What form, does Dr. Guppy suppose, is assumed by the growing coral on the coasts of the descending islands?

Let me draw attention to Kandavu. To the north of this island there is a barrier reef inclosing a chain of islands of volcanic origin, and gradually decreasing height. The most northerly islet, which is a mere rock (now surmounted by a lighthouse), stands in the centre of a circular barrier of great symmetry. The highest part of Kandavu is over the western end, and here there is comparatively little coral. Has not this group every appearance of a range of mountains, the northern half of which is sinking beneath the ocean? There are many strings of islands in Fiji and elsewhere the position and coral surroundings of which seem to be accounted for only by the theory of subsidence.

Mr. Darwin did not visit Fiji; but it is worthy of note that Mr. Dana spent five months there, and enjoyed peculiar advantages of examination, and that he left it convinced of the general truth of Mr. Darwin's theory.

8 Ashburton Road, Southsea. W. USBORNE MOORE.

#### Hydrophobia.

I THINK it cannot fail to interest some of the readers of NATURE to know what is written "in the Talmud of old—in the legends the Rabbins have told" about this baneful malady. I have therefore translated a fragment preserved in this ancient work, which, read through the mist of ages and wrapped in the garb of expressions and ideas of a long-ago past, may be of value to the antiquarian, and perhaps not wholly uninteresting to the man of science.

A. D.

June 11.

"It is not permissible to give to a person bitten by a mad dog from the lobe of the mad dog's liver, but Rabbi Matya, the son of Hheresh, considers it permissible" ( "Mishna," "Tractate Yoma," p. 83).

<sup>1</sup> The subject of hydrophobia is introduced quite incidentally, the question in dispute between the "Mishna" and R. Matya being whether the patient might eat of the mad dog's liver upon the fast of the Day of Atonement, and the difference of opinion is in consequence of the prescribed remedy being held to be only imaginary on the one side, and a real one on the part of R. Matya.

"He who is bitten by a mad dog, &c." The Rabannan have learnt that there are five indications of rabies, viz. open mouth, dripping saliva, elongation of ears, tail resting on buttocks, and wandering along the sides of the streets. There are some who add barking without sound. How does this come about? Rav says that witches have practised their sorceries upon them, and Samuel says an evil spirit has rested upon them.

What deduction may be made from this difference of opinion? That the mad dog should be killed by means of a weapon hurled from a distance, for in accordance with the view held by Samuel we learn that the dog, when killed, should be despatched from a distance. He who has come into contact with a mad dog by the animal brushing against him is in danger, and he who has been bitten by a mad dog is in peril of his life.

"He who has come into contact, &c." What precaution should he take? He should divest himself of his robes and *run*. Rav Huna, the son of Rav Joshua, came into collision with a mad dog in the street. He threw off his robes and ran, exclaiming, "I illustrate in my own person the Scriptural verse, 'And wisdom is a source of life to those who possess her.'"

"He who is bitten, &c." What precaution should he adopt? Abaya says he should obtain the skin of a male ape and write thereon, "I, so and so, the son of so and so, write upon thee, 'Kanti, Kanti, Kiloroth,'" and those present should respond "Kandi, Kandi, Kiloroth," the Lord, the Lord, the Lord of Hosts, Amen, Amen, Selah." He should then throw off his clothes and bury them in the burial-place for twelve months, after which he should recover them and burn them in a furnace, scattering the ashes across the roads.

During these twelve months, if he should drink water he should do so only through a copper tube, otherwise he might see the reflection of the demon in the water held in the vessel, and suffer dangerous consequences.

It is said of Aba, the son of Matya (he is Aba, the son of Menimah), that his mother made for him a tube of gold ("Gemara," "Tractate Yoma," p. 84).

#### SIR LYON PLAYFAIR ON UNIVERSITIES.

WE congratulate Sir Lyon Playfair on the admirable speech he delivered last week in the House of Commons on the Scottish University Bill. It was a powerful and luminous exposition of the true functions of Universities, and of the duty of the State with regard to the highest departments of education.

Speaking of the fact that the adaptation of degrees in Scotland had not followed the steady improvement in the education of the people, Sir Lyon Playfair said:—

"Degrees remained much as they were two or three centuries ago. The University was not a technical school, but a school to introduce culture into the professions. Unless that culture were introduced there was no justification for professional schools in the Universities. The *via antiqua* ought to be replaced by a *via moderna*. The Commission of 1878 proposed to open five gateways of knowledge—the gateways of literature and philology, of philosophy, of law and history, of mathematical sciences, and of the natural sciences. Now there was a great difference between the Universities of rich and of poor countries. The Universities of poor countries must rest on the professions. The rich men of Scotland went to Oxford and Cambridge, whereas those who attended the Scotch Universities had to earn their bread by a profession. Unhappily those professions were now being taught without culture; that was, with the exception of theology, the men went through the technical part of their education without taking a degree in arts, though there was a sort of matriculation examination, which did not represent a very high degree of culture. In that way the great medical schools were technical schools which gave length but not breadth of education. One of the greatest reforms to be attained was to carry out the recommendations of 1878 so that, by proper courses in arts, culture might be restored to the professions."

Sir Lyon Playfair spoke as follows about the provision

<sup>1</sup> The meaning of these words is lost.



made in the Bill for an increase in the vote for the Scottish Universities:—

"The increase of £13,000 in the vote was no striking example of Parliamentary generosity when measured by the efforts of other countries. Reference had been made to what had been done in Holland, a country with a revenue of nine millions, and a population about the same as that of Scotland. Holland gave £136,000 to her Universities. The case of France was equally striking. The French Institute discussed for a whole week why it was that the great crisis in her history produced no men of ability in France. The decision they came to was that the reason was to be found in the decay of the provincial Universities. Since that time the French Government had spent £3,280,000 on the provincial Universities, and voted half a million a year for their support. Then Germany had spent £711,000 in order to build and equip the University of Strasburg, which they endowed with £46,000 a year. This country must be prepared to spend more money on higher education not only in Scotland, but in England. Modest, however, as was the proposal of the Government, he was rejoiced at the disappearance of the abominable finality clause. There was no finality in knowledge or the progress of science. Notwithstanding the stern aspect of the Chancellor of the Exchequer, we could not help ourselves. We must be prepared to adequately support our Universities, and to make sufficient provision for higher teaching in all our great towns. Though he thought the provision inadequate for what the Bill proposed, he had perfect confidence in the generosity of Parliament that, having begun the reform of the Scotch Universities, they would take care that the reform was thoroughgoing. In the Scotch Universities, while the number of students was very large relatively to the number of teachers as compared with, say, the German Universities, they had one Professor for one single subject. For the Chair of Chemistry in Edinburgh, for example—a chair which he had had the honour to hold—there was but one Professor, whereas in any moderate-sized German University there were four or five. They must add largely to the teaching staff of the Universities in Scotland if they expected them to become prosperous. . . . The teaching Universities in England had one student to 3500 of the population; in Ireland there was one student to 2040 of the population; while in Scotland there was one University student to 580 of the population. Therefore, the roots of University education had gone seven times wider and broader among the people of Scotland than they had done either in England or in Ireland. The object had always been to try and evolve brain power from all capable citizens, and it was this which had made Scotland what it was. Nevertheless, it was his deliberate opinion that Scotland was decidedly behind England in education. The English Universities had been adapting themselves to the changing conditions of the world very largely, and the Scottish Universities had been remaining behind in modern wants altogether. The lion rampant in Scotland had been standing on its hind legs pawing the air, while the lion passant with its fore-feet on the ground had been going ahead; and it was because of that consideration that he was extremely anxious to see this Bill pass into law."

#### THE OXFORD UNIVERSITY OBSERVATORY.

THE Savilian Professor of Astronomy, in his Annual Report, read on June 5, thus refers to the work done:—

In addition to the statutable lectures, four others were given on the recent speculations concerning the construction of the sidereal universe, in relation to possible meteoric collisions.

The renovation of the macro-micrometer, mentioned in

the last Report, has been completed by Mr. Simms, who originally constructed it; and it has since been in constant use. The mounting of the De la Rue instrument has been provided with a slow motion in right ascension, of a peculiar and delicate construction, and set in motion by electro-magnets; the driving-clock also has been thoroughly renovated in the parts which exhibited the effects of wear. The object of all these extensive improvements is to make it possible to expose photographic plates during those lengthened periods of several hours, rendered necessary for the purposes of the recent modifications of astronomical inquiries. These improvements have been so recently effected, and the twilight is at present so protracted, that it has not yet been possible to fully test their practical efficiency on the skies.

The mounting of the Grubb equatorial has been completed. It is now furnished with automatic driving apparatus of the most modern and efficient construction, well worthy of the high reputation of its eminent constructor. The visual object-glass has been refitted, and is now in a greatly improved condition. The tube of the photographic telescope is *in situ*, but the object-glass of 13 inches' aperture, meeting the conditions required by the International Congress, has not yet been supplied by the maker. Two experimental object-glasses have, however, been already examined, but their performance did not prove satisfactory. Prof. Pritchard is now expecting the speedy arrival of a third, which, he is assured by Sir Howard Grubb, will relieve him from further anxiety, and place him in a position to prosecute the essential preliminary operations necessary for the International scheme.

All these important renovations and additions, so necessary to practical astronomy in its present phase, have been provided by the unsolicited generosity of the late Dr. De la Rue. Prof. Pritchard expresses deep regret—which he has no doubt is shared by the Board of Visitors—that their lamented and munificent friend did not live, as he had hoped, to see the fulfilment of his anticipations in connection with this judicious expenditure.

The first extensive series of the observations connected with the new application of the photographic method to stellar parallax, as applied to stars of the second magnitude in the northern hemisphere, has been brought to a conclusion, and is now, through the liberality of the Delegates of the University Press, in course of printing. The volume, it is hoped, will be distributed among astronomers in the course of a few weeks. It comprises no less than thirty distinct determinations of stellar parallax: these are applied to eight stars, referred in most cases to four faint stars of comparison. Progress also has been made in the continuation of the like observations to other stars connected with the general scheme. Prof. Pritchard has had the gratification of finding that this method of parallactic determination, which was originally devised at Oxford, is in process of adoption at other well-known Observatories.

At the request of Dr. Gill, he proposes to assist in a scheme of photographic observation of the minor planet Victoria, for the determination of solar parallax during the present summer; efficient assistance, however, can be rendered in this direction only on the condition of the arrival of a satisfactory object-glass from Dublin.

He has been engaged in the examination of a Wedge photometer for the Observatory of Pulkova at the instance of its eminent Director. It is not without some satisfaction that he finds that this method of photometry is likely to be employed in other Observatories.

The Director states that the various operations mentioned above could not have been thus efficiently completed without the continuous and intelligent co-operation of the two able assistants, Mr. W. E. Plummer and Mr. C. A. Jenkins. It has been a source of great gratification