accidentally introduced into Europe. *Diaspis amygdali*, a very destructive coccid, was described by Tryon in 1889 from Australia; already we knew it also from various localities in the Oriental, Palearctic, Ethiopian, Nearctic and Neotropical regions! Very many other such cases might be cited, showing that there is great need for speedy investigation, before the data regarding the true habitats of these and other organisms become impossible of discovery, owing to the extermination of some species, and the dissemination of others.

T. D. A. COCKERELL.

Mesilla, New Mexico, U.S.A., February 12.

Formation of Coral Reefs.

I HAVE read with much interest the description in NATURE of the attempt of Prof. Sollas to bore through the rim of the Funafuti Atoll.

I should like to know what ground he has for believing that the soundings obtained by the officers of the ship which conveyed him to the island, support Darwin's theory of the formation of coral atolls; for there does not appear to be any new feature in the section printed with his letter. It is similar to many other sections of atolls in the China Sea and elsewhere, which have been published from time to time by the Hydrographic Department.

As this attempt has failed, it might be well to turn attention to a more accessible part of the Western Pacific.

The Fiji islands are a complete museum of corals, and contain reefs of every sort of formation. Many of these appear to support Darwin's theory. The Lau, or eastern group, has been elevated, and contains some ancient coral reefs many hundred feet above the sea. The island of Naiau is 580 feet high, and has a rim summit of coral enclosing a depression which, if my recollection serves me, is about 200 feet below the top. If Darwin's theory is correct, this ancient atoll must have been first formed by subsidence, and subsequently elevated to its present position. Borings would probably reveal the lost peak not far below the floor of the central depression.

The island of Kambara, 470 feet in height, is of similar formation.

A close geological examination of Naiau or Kambara would, in all probability, end the controversy, for the borings into the base of the island, commencing some hundreds of feet above the sea, but below what I suppose to be an ancient atoll, could be easily undertaken, and ought to prove at once the nature of the foundation upon which the reef rests.

With regard to the concluding paragraph of Prof. Sollas' letter, he has apparently overlooked the fact that a live specimen of reef-building coral (*Astraea*) has been dredged up from a depth of forty-five fathoms in the lagoon of the Tizard bank by Dr. Bassett-Smith, of H.M.S. *Rambler*. This specimen is in the Natural History Museum. W. USBORNE MOORE.

8 Western Parade, Southsea, February 25.

Chinese Yeast.

A FRIEND has sent me a few ounces of what he calls Chinese yeast, a white substance which, so I understand, possesses the power of converting rice grains into a soluble substance, which is then allowed to ferment until it is converted into alcohol. Perhaps some of your readers could refer me to a more detailed account of the properties of this yeast. I shall be pleased to send samples for cultivation to anybody who would care to undertake it. C. E. STROMEYER.

6 Jedburgh Gardens, Glasgow, March 6.

DINOSAURS.¹

IT is only sixty years ago since George Catlin wrote his "North American Indians," and graphically described the vast herds of bison, numbering millions of individuals, travelling for days together across the rolling prairies; yet we have seen these disappear, like the aborigines, and their places usurped by the "cow-boy," and by countless herds of domestic cattle.

¹ "The Dinosaurs of North America." By Othniel Charles Marsh. Extract from the Sixteenth Annual Report of the United States Geological Survey, 1894-95. C. D. Walcott, Director. Imperial 8vo. Pp. 133 + 414. Pl. ii + lxxxv. (Washington, 1896.)

If we could only wind the clock of Time still further backwards, and make him disclose, with moving-photographic-videness, some of those earlier Mesozoic scenes on the American continent, or even in our own little island, for that matter, we should find, not herds of bison, but far other cattle, though some wore horns, and were big and ugly enough in all conscience; yet they were mostly harmless, and herbivorous in diet, but belonging to patterns now entirely obsolete, like the old "brown-bess" of our grandfathers' days, only more so.

And, doubtless, it is due to the extreme rarity of preservation of old land-surfaces, as compared with the far more numerous and abundant records of marine areas which have come down to us, that renders their discovery of such paramount interest to the biologist and geologist. The vast physical changes also which they indicate are, undoubtedly, owing to the immense and unmeasured periods which have intervened, filled only by the slow-music of the sea.

Thus, after parting company with Eocene Mammals, such as *Tinocerus*, we take a plunge in the sea of time, and come again on shore to find that all but the tiniest of Mammals are absent, and the land is peopled by huge herbivorous and somewhat lesser carnivorous Dinosaurs in their stead.

Although this strange reptilian order was discovered so early in this century, it is only within the last thirty years that, thanks to Prof. Huxley, we have been led to understand them; and not till 1881, had we a correct notion even of the skeleton of our own famous *Iguanodon*, though Mantell had commenced to record the discovery of its bones in Sussex in 1825.

One of the most curious points about these mediæval animals is, that they make their earliest appearance in the Triassic period, and were first known in North America some sixty years ago, not by their bones or teeth, but by their footprints. These tracks, discovered so abundantly on the fine-grained, often fissile, sandstones of the Connecticut valley area, were at first attributed to birds, although any birds earlier than the Tertiary period were then unknown.

Yet the genius of Huxley had demonstrated (in 1868) that in the Dinosauria we are dealing with a group of reptiles which most nearly approached the flightless birds, not merely in the weakness and smallness of their fore-limbs, but in the structure of the pelvis, the ilium prolonged forward in front of the acetabulum as well as behind it, and the long rod-like ischium and pubis being all strongly ornithic characters; the head of the femur being set-on at right angles to the shaft of the bone, so that the axis must have been parallel with the median vertical plane of the body, as in birds. The metatarsals were free as in young birds, not ankylosed together as in adult ones; moreover, in *Iguanodon* and some other forms met with, the number of functional digits was three, as seen in the foot of *Dinornis*, and in the great majority of living birds, and the number of the phalanges agrees with that in the II, III and IV toes of the Emeu and Rhea, or any other typical bird's foot. So that there is good reason to conclude that the Connecticut footprints, instead of being those of birds, were certainly the tracks left behind by the bird-like Dinosaurs of that period.

From the great difference in size between the fore and hind limbs, Mantell and Leidy concluded that the *Iguanodon*, and some others of its kind, may have supported themselves for a longer or shorter period upon their hind-legs. This conclusion was further confirmed by the discovery made by Mr. S. H. Beckles, F.R.S., of huge three-toed footprints occurring in pairs upon ripple-marked surfaces of Wealden sandstone near Hastings, of such a size, and at such a distance apart, as to lead to the conclusion that they were undoubtedly made by *Iguanodon*. Mr. Beckles' discovery has since been confirmed by the observations of Louis Dollo upon the