

president of the United States ought to make inquiry, and relieve the country of the discredit which must come from the challenged veracity of an official body whose acts and sayings are being closely followed abroad and at home.

### LETTERS TO THE EDITOR.

*\*\* Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

#### Professor Hastings's theory of the corona.

I SHOULD be glad, with your permission, to make a few remarks with reference to a passage in Professor Hastings's letter in your issue of April 24. Professor Hastings states that he shows, in his report of the eclipse expedition to Caroline Island, that all the characteristics of the corona may be explained naturally and easily by his diffraction theory, *with the exception of the occasional filamentous structure*. The words which I have italicized convince me that Professor Hastings cannot have paid sufficient attention to the abundant and irrefragable evidence as to the solar corona which is afforded by photographs taken during total solar eclipses. These photographs prove that what Professor Hastings summarily characterizes as 'occasional filamentous structure,' constitutes the greater portion of the corona. In the photographs of the eclipse of 1871, there were more than a hundred distinct details of this kind, which I measured and drew, when assisting Mr. Ranyard in describing and cataloguing the details of the structure of the corona (*Mem. roy. astron. soc.*, xli. 657-686). These details were, of course, not all visible on a cursory inspection of the negatives; many of them were not perceived till after long study: but, once seen, there was no mistake as to their existence, and none were described that were not visible on at least three of the plates.

Moreover, since the coronal rays are very various in direction, and are seen in the negatives one behind the other, and at all angles of projection, it is evident that the corona must in reality be far more 'filamentous' than it appears in the photographs. To a greater or less extent, the same character is shown in negatives of other eclipses, though somewhat less of it is visible in some of the more recent photographs, probably on account of the greater density of the film in the case of those taken on the extremely sensitive dry plates.

I cannot enter into the optical points connected with Professor Hastings's theory, but simply wish to point out, that, if it will account for every thing except the 'filamentous structure,' it accounts, after all, for very little. W. H. WESLEY.

Royal astron. society,  
Burlington House, London.

#### The natural gas-wells of north-western Ohio.

The gas-wells that have been drilled within the last year in Hancock and Wood counties, O., have furnished some interesting, and to some degree unexpected, information as to the geological foundations of the state. They show the presence of several formations that nowhere appear in outcrop within the limits of Ohio. The section furnished by them agrees quite closely, as to its elements and its general lithology, with the New-York scale.

I have lately examined the carefully kept records and drillings of six of these wells. They agree entirely in their main features. All begin in upper Silurian limestone, and all find their main supply of gas in the Trenton limestone. The section furnished by them is as follows:—

	Feet.
Niagara limestone, gray and blue, dolomitic . . . . .	200
Niagara clay, a characteristic bed in central Ohio . . . . .	2-4
Clinton limestone and shale, high colored . . . . .	75
Medina shale, red and blue . . . . .	50-100
Hudson River shale, gray and blue . . . . .	400-500
Utica shale, dark, almost black, in places . . . . .	275
Trenton limestone . . . . .	300
Bird's-eye limestone . . . . .	?

The Trenton limestone was drilled through in but a single well.

The Niagara clay contains characteristic fossils, as does also the Hudson-River shale and the Utica shale. The former shows chaetetoid corals, and fragments of *Zygospira* and *Orthis*. The Utica shale contains *Leptololus insignis* Hall, and fragments of the spines of *Echinognathus* of Walcott apparently. The Trenton limestone is crystalline and hard, but it shows the presence of fossils in abundance.

The gas obtained from the wells is delivered with moderate pressure. It contains a notable quantity of sulphuretted hydrogen. It is used so far mainly for heating and for steam-production. Judicious estimates put the amount yielded each day by three wells in Findlay, the county-seat of Hancock county, at five hundred thousand feet. EDWARD ORTON.

Columbus, O., June 1.

#### A tropical American turtle on Anticosti.

Professor John Macoun, botanist to the Canadian geological and natural-history survey, has shown me a turtle which was given him by the light-keeper at West Point, Anticosti, in August, 1883. It was found living near the lighthouse, and was the only one seen by the keeper during his twenty years' residence on the island. Mr. F. W. True, to whom I sent the specimen for identification, pronounces it to be a half-grown *Chelanoides tabulata* (Walbaum) Agassiz. The habitat of the species is tropical South America and the West Indies, whence it was probably brought to Anticosti on some vessel. C. HART MERRIAM.

#### Abert's squirrel.

On the 10th of April last, on my return from a five-days' visit to the pueblo of the Zufis in New Mexico, I drove through an extensive pine-forest, which the road enters a few miles from Fort Wingate, my destination.

There were in the ambulance with me, besides the driver, Prof. J. W. P. Jenks of Brown university, curator of its museum, and a fellow-traveller, a friend from Philadelphia. Professor Jenks was eagerly on the lookout for rare things in south-western birds and mammals for his college museum, while his friend was enjoying himself in examining two specimens we had taken along the road, and joining in the conversation as best a layman may, when two enthusiastic naturalists formed the odds against him.

Suddenly the driver stopped the conveyance, and directed my attention to a large gray squirrel that had just scampered up the trunk of one of the lofty pines, and was now sitting, partly hiding, on the lower limb, close to the body of the tree.

In a moment this magnificent creature was mine, dead at my feet.

It proved to be a fine female specimen of Abert's squirrel in the gray pelage; and I subsequently learned from others who have hunted them in this locality, where they are by no means abundant, that they are sometimes taken where their fur is of a jetty black, with the tail broadly bordered with snowy white, and perhaps similarly marked on the breast and lower parts.

Old hunters who have had the opportunity of observing its habits, say that it differs but little from the ordinary gray squirrel of the eastern states. In this region it is confined to the mountainous belts of the great pine-trees, in which it spends most of its time, rarely descending to the ground except for water, and occasionally for food.

Specimens have been taken exhibiting the various intermediate stages of coloring between the black and the gray; and it is said that the black variety is a wonderfully handsome animal, with its long, wavy white emargined tail, and its fantastic ear-tufts.

The gray one, which I shot on the day referred to, I think is, without exception, a specimen of the finest squirrel in the fauna of our country. I have no acquaintance with another American species that can compare with it.

I do not remember having seen at any time a drawing of this squirrel: so, after having carefully prepared the skin and skeleton of my specimen, I made the life-size figure of its head which illustrates this letter.

From it I also took the following measurements, and description of its external characters and appearance:—

	Centimetres.
Length of body from tip of nose to root of tail, down the back . . . . .	35.0
Length of tail . . . . .	34.0
Height of ear, including tuft . . . . .	6.5
Fore-paw, from inner pad to longest claw . . . . .	4.3
Hind-paw, from inner pad to longest claw . . . . .	4.8
Tip of nose to anterior canthus of eye . . . . .	3.2

Entire upper parts of a grizzly, iron gray. Lower halves of inner aspects of ear-tufts, and a median broad stripe from shoulders to near root of tail, of a brilliant chestnut. Ear-tufts large, composed of straight black hairs. Entire under parts, borders of tail, circum-ocular stripe, and upper sides of feet, pure white. A rather broad dividing-line at either side, between the white of under parts and gray above, jetty black. Central hairs of tail, for its entire length, also black, forming a mid-third stripe down the member. Claws horn-color and curved. Whiskers composed of six or ten black, stiff hairs.

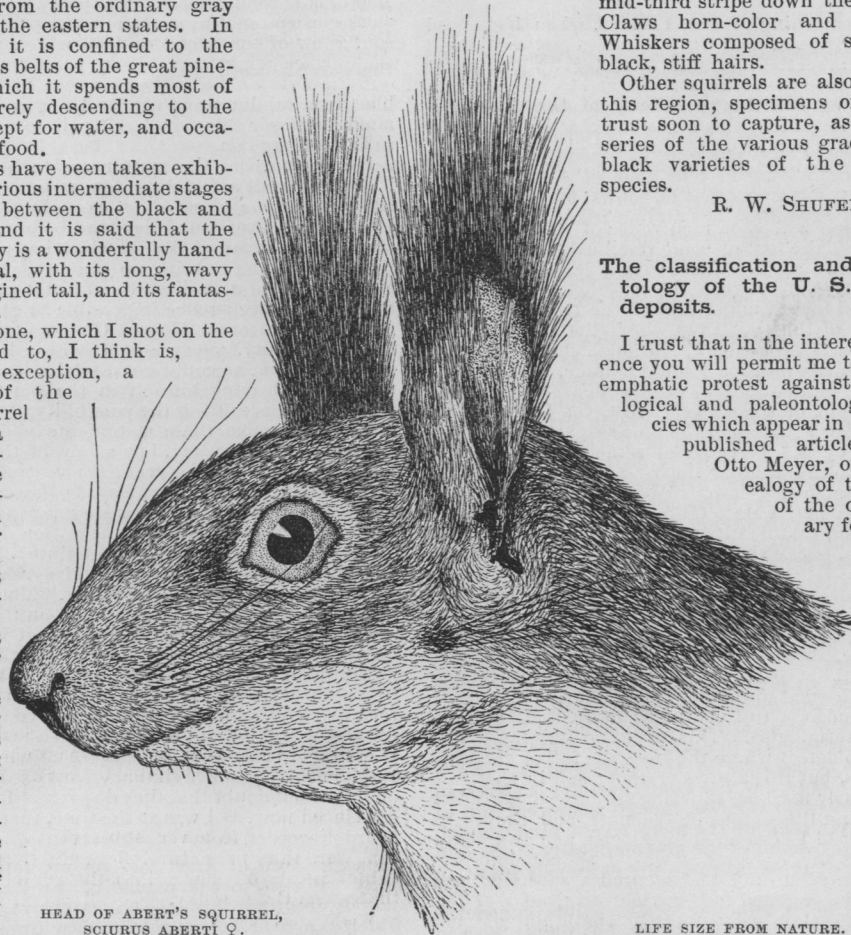
Other squirrels are also found in this region, specimens of which I trust soon to capture, as well as a series of the various grades of the black varieties of the present species.

R. W. SHUFELDT, M.D.

#### The classification and paleontology of the U. S. tertiary deposits.

I trust that in the interests of science you will permit me to lodge an emphatic protest against the geological and paleontological fancies which appear in a recently published article by Dr.

Otto Meyer, on the genealogy of the species of the older tertiary formations.



The article displays such a monstrous disregard or ignorance (or both) of the literature of the subject of which it treats, and so fully betrays the author's misconception of the numerous species that have been described from the region in question, that it would not even call for a protest, were it not for the air of respectability which is given to it by the cover of the *American journal of science*.

Little can and need be said in response to a thesis which maintains that there is not sufficient evidence to prove that the Vicksburg beds overlie the Claiborne sands, and that, as a matter of fact, the latter will be found overlying the former, when not a particle of evidence is brought forward in support of this statement.