smaller pieces, evidently broken from this, and somewhat worn. This rock presents all of the characteristics and all of the grades of the nodules found in the marl conglomerate, — the same shells, same large amount of sand, and the same appearance. The character of the rock changes gradually here. Between Warsaw and Kenansville it is richest, yielding forty to fifty per cent phosphate, while both east and west it grows more sandy. Between Sampson on the west and Jones on the east we find all the grades of rock which were found in a single place in the conglomerate beds of the lower country. We conclude, therefore, that this conglomerate was formed from extensive breaking up and mingling of beds similar to those seen at the present time in Sampson, Duplin, and Jones counties, and not from stray coprolites, as has been supposed.

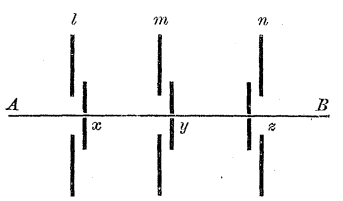
Whether this field will yield any phosphate of more than local value depends upon conditions yet to be determined. CHAS. W. DABNEY, Jun.

N. C. experiment-station, Jan. 2.

Radiant heat.

While it appears that Mr. Fitzgerald's criticism upon Dr. Eddy's hypothesis is conclusive, yet the latter makes a statement in your issue of Dec. 21 which is misleading, since it implies that the device will produce the desired result. Dr. Eddy says, —

"Thus the fact remains, that, although a definite amount of heat from *B* remains entangled in the region *m n*, which is not increased with the lapse of time, there is a continued passage of heat through this region into *B*, that being the very object sought to be accomplished by my process."



Now, the fact is, there cannot be 'a continued passage of heat through this region into *B*,' without permitting the passage of heat from *B* to *A*, by any of the processes described. Granting that heat is entrapped in the space *m n*, it will escape into the space *l m* whenever the door *y* is opened for the passage of heat from *A* into the space *m n;* and the heat so entrapped in the space *l m* will pass on to *A* whenever *x* is opened to admit heat from *A*. This is so plain, that it is only necessary to call attention to the fact, to have it admitted. If the only object sought, as stated in the above extract, was to permit the passage of heat from *A* to *B*, it could be secured at once without any device between *A* and *B*. As originally stated, the object was to transfer more heat from *A*, the colder body, to *B*, the hotter one, than was passed in the opposite direction. The writer has shown in another place[1] that Dr. Eddy's system of moving screens fails to accomplish this result. DE VOLSON WOOD.

Limits of tertiary in Alabama.

The announcement in *Science* (ii. 777) of Professor Johnson's extension of the border-line of the tertiary in Alabama to a position ten miles north of Allenton, and six north of Camden, recalls similar observations made by Alexander Winchell in 1853, and published in *Proc. Amer. assoc. adv. sc.* for 1856, pp. 88, 89. These sub-Claiborne beds he designated 'buff sand;' and the overlying ledge of calcareous grit was traced by him "eight and a half miles north of Allenton, which" was "twenty-five miles farther north than the tertiary beds had been hitherto recognized in this part of the state." The undescribed fossils collected were left with Professor Tuomey, who pronounced them eocene, and held them for description till his death in 1857. A few years later the vicissitudes of war involved the destruction of the Tuscaloosa cabinet by fire. Mr. Winchell's observations were communicated orally in December, 1853, to Professor Tuomey, who noted them down on a manuscript map, from which was compiled the map published in 1858 in Tuomey's (posthumous) second report, edited by Mallet. This places the boundary of the eocene a mile north of Allenton, which, as shown above, is not so far north as Winchell traced the formation. There is, however, nothing in the text of the report on which any change in the older map of this region could be based. Professor Tuomey's observations had been directed to other parts of the state; and Mr. Thornton, his assistant, reports tracing this line through Monroe county, while the map shows it located nine or ten miles north of that county, and, if fully conformed to information in Professor Tuomey's possession, would have shown it seventeen and a half miles north. These statements are only important on the principle of *suum cuique*.

A. W.

Italics for scientific names.

The scientific name of every described plant and animal consists of two or more words: namely, that of the genus, used as a substantive; and the specific name, which follows, and is an adjective adjunct. A species may have a dozen or a hundred common or vulgar names, in half as many languages; but there is only one name in the dead, unchanging, scientific nomenclature. It seems to me that the importance of scientific names, over all others, makes them deserving of a more emphatic type than that of the general text. In the ordinary print — as that of this page of *Science* — any scientific name should be given in italics. Take, for example, the American larch, tamarack, or hackmatack. This tree of our swamps may have many local names, but it has only one in science the whole world over. The emphasis of this fact is largely lost if it is written without an underscore, or printed thus, Larix Americana. It would be only a short step farther to have it larix americana.

It does not follow that names of groups need to be italicized. Thus we can have the order Liliaceae, which contains the genus *Lilium* with its Canada lily (*Lilium Canadense*), the golden-banded lily of Japan (*L. auratum*), and *L. candidum*, or the common white lily. *Quercus*, *Pinus*, *Prunus*, *Ranunculus*, and the thousands of other genera of plants and animals, when used alone, may be set in the common type of the page, and stand thus, — quercus, pinus, prunus, and ranunculus; but I do not like it. Many of the generic names are derived from proper names, as Linnaea, Magnolia, Tournefortia, Begonia, etc.; and these certainly should begin with capitals. When, however, the name of any genus is the common name of all the plants in that genus, it is reasonable to use it without a capital, when employed in a general way. We may say of a plant, it is a fine begonia, or a stately magnolia, or a delicate linnaea, and the absence of

[1] *American engineer*, Chicago, 1883, Jan. 12, Feb. 9, 23, and April 6; also *Journ. Frankl. inst.*, May, 1883, 347.