Dr. Dyar read 'A Note on *Pyrausta ochosalis* Fitch MS.,' a pyralid moth, showing that Fitch's species is distinct from *Pyrausta generosa* G. & R. He exhibited, further, a living larva of *Hemileuca electra* Wright, from southern California, one of the rarest of our saturnian moths. Dr. Dyar presented, also, a description of a new genus and species of moths belonging to the family Tortricidæ.

Mr. Ashmead exhibited a ceropalid (pompilid) wasp taken in Texas in the nest of the harvesting ant, *Pogonomyrmex barbatus* Smith. It constitutes a new genus and species.

Mr. Warner showed a proctotrypoid hymenopterous parasite found attached by its jaws to a specimen of grasshopper in the National Museum collection. It is a species of the genus *Scelio,* the members of which are parasites of grasshoppers' eggs, and have a habit of attaching themselves to gravid female grasshoppers and waiting for them to oviposit.

Dr. Hopkins reported some observations he had made recently in North Carolina upon (1) certain dipterous galls found on pine at Asheville, and (2) the damage inflicted upon girdled cypresses, sweet gums and black gums by ambrosia beetles.

Mr. Heidemann exhibited a specimen of the aradid bug, *Neuroctenus pseudonemus* Bergroth, collected at Bladensburg, Md., under bark, and not previously recorded from the vicinity of the District of Columbia.

Mr. Banks showed a specimen of the syrphid fly, *Ceria willistonii* Kahl, reared from the puparium at East End, Virginia. It is new to that locality. The adult resembles a fly of the family Conopidæ, or some wasp. He exhibited, also, two rare ortalid flies which resemble ants in appearance, *Myrmecomyia myrmecoides* Loew and *Odontomera ferruginea* Macquart.

Dr. Howard described some recent experiments carried on in Brazil for the purpose of testing the correctness of the conclusions of the U. S. Army Commission in regard to yellow fever. These experiments have been generally accepted as conclusive, and have removed all incredulity as to the fact that mosquitoes play a part in the transmission of yellow fever.

The following papers were presented: 'A Revision of the Boreal-American Species of *Nonagria* Ochs,' a genus of noctuid moths, by John B. Smith; 'Some Remarks on Genera in the Mutillidæ' (sand wasps), by William H. Ashmead; 'A Review of the North American Species of the Lepidopterous Family Anthroceridæ' (Zygænidæ), by Harrison G. Dyar.

ROLLA P. CURRIE,
Recording Secretary.

DISCUSSION AND CORRESPONDENCE.

THE GRAND GULF FORMATION.

TO THE EDITOR OF SCIENCE: In response to the clear and courteous exposition of their present ideas of what constitutes the Grand Gulf formation, by Messrs. Smith and Aldrich (SCIENCE, July 3, pp. 20–26), I may say: (1) That I withdraw the opinion that it is not new; now that I understand it clearly, I regard it as an absolutely new view; (2) that so far as observed facts are concerned I am far from wishing to be understood as questioning the existence of a deposit of unfossiliferous clay which contains irrecognizable traces of vegetable matter, which has a wide distribution as claimed by these gentlemen, and lies above the Chesapeake Miocene and below the so-called Lafayette, from which it is not separated, where I have observed it, by any unconformity or characteristic peculiarity. I would recall the fact that I have personally no knowledge of the 'Grand Gulf' except what I have derived from such excellent authorities as Wailes, Hilgard, Smith, Langdon, Professor G. D. Harris, Miss Maury, etc., from their published writings and observations in the field. My office has been, after making field studies of the fossiliferous Tertiary, especially the Chattahoochee and Chipola sections, to endeavor to correlate with horizons of known age in the marine series, the fresh- or brackish-water formations almost destitute of fossils, laid down about the margin of the Mississippi embayment during a long period of Tertiary time, which have been named by the geologists above mentioned, and to which, so far, no satisfactory key has been found.

The difference of opinion, therefore, between Messrs. Smith and Aldrich and myself is in regard to *names* and their application merely, and not a calling in question of the accuracy of any observation made by them.

It is an acknowledged fact, I believe, that at least since the period of the Vicksburg sedimentation, a considerable part of the shores of the Mississippi embayment have been and still to some extent are the seat of a sedimentation of alluvial material in fresh or brackish water containing fragments of vegetable matter converted into lignite, and from which only a few rare specimens of fresh-water molluscan fossils, turtle shells, etc., have been obtained in half a century. The rarity of fresh-water shells is proof that the marshes or lagoons could not have been purely fresh-water areas, the absence of oysters, etc., shows that they were not permanently brackish, and we are forced to offer the hypothesis that fresh and salt water so alternated over the area concerned, that inhabitants of neither were able to maintain a footing and that the organic remains found are either drifted from elsewhere or the product of extremely local and temporary conditions.

The earlier deposits of this kind, other things being equal, we should expect to, and I believe we do find at the greatest distance from the sea and in the most consolidated state; though a comparatively recent transgression has carried unconsolidated sediments over a large part if not all of the antecedent deposits. Now it seems to me that in their interesting communication Messrs. Smith and Aldrich have momentarily forgotten the history of research on this perplexing question. Let us very briefly review it.

The Grand Gulf sandstone, a rock 'superior in hardness to granite itself' was first named by Wailes in 1854, who specifies as a typical exposure that on the banks of the Mississippi, at Grand Gulf, Claiborne Co., Miss., from which the formation was named. Hence in the allocation of names to portions of the sediments which have since been hastily included under it, we must reserve for this particular horizon the name of Grand Gulf. Wailes believed that more tractable rocks to the eastward were identical with this sandstone, but everywhere it is described by him as a rock, a hard or massive sandstone, suitable in its softer phases for building stone, millstones, etc. Beyond the Mississippi this sandstone reappears in Louisiana, and according to Miss Maury extends across the state and as far as the Brazos River in Texas. To the eastward near Oak Grove, Florida, the typical sandstones according to Professor Harris and Miss Maury 'pass beneath the (Oligocene) Oak Grove sands, indicating that the sandstone is approximately of the same age as the Chattahoochee.'* In Alabama the typical sandstone is rare and the series corresponding 'usually consists of clayey sands or joint clays' according to the same authority.

In 1860 Hilgard, in his valuable report on the 'Agriculture and Geology of Mississippi,' considerably enlarged the scope of the formation, taking in clays, sands, consolidated and unconsolidated, over a large area of country. Later, as mentioned in my last communication, he came to the conclusion that the series included a succession of sediments of ages between the Vicksburg and the drift. The fact that at the typical locality the flinty sandstone is succeeded by the unconsolidated Lafayette or Orange Sand, is of course no evidence of continuous sedimentation without a break between the two, such as appears to be the case in the aluminous clay of the Chattahoochee, where no distinct line of demarcation is visible between the latter and the so-called Lafayette conformably above it.

As one of the problems to be solved this state of things has long attracted the attention of the few geologists working on the southern Tertiary. Some fifteen years ago I received from Professor Smith what were hailed as fossils at last from the Grand Gulf sands of Roberts, Ala., a horizon which in 1894 Professor Smith included in the Grand Gulf formation.† They were very imperfect but fortunately contained one identifiable characteristic Oligocene species of the Chipola horizon. Subsequently Mr. L. C. Johnson obtained from what he pronounced to be

* *Bull. Am. Pal.*, No. 15, p. 70, 1902.

† 'Coastal Plain of Alabama,' p. 102.

Grand Gulf strata near Vernal, Miss., another series of fossils which I was able to determine as of late Chesapeake or early Pliocene age, and which were then eliminated from the so-called Grand Gulf and placed by Professor Smith at the top of the Miocene with the name of the Pascagoula formation (*op. cit.*, p. 94).

In 1894 Professor Smith expressed himself in regard to the 'Grand Gulf' in the following language: 'The barren Grand Gulf sands pass towards the east into the marine deposits of the Chattahoochee (Oligocene) which are their time equivalent' (*op. cit.*, p. 17) and 'The underlying division of the Grand Gulf * * * its position is identical with that of the Chattahoochee limestone of Mr. Langdon, and there is no room for any reasonable doubt about their identity in age' (*op. cit.*, p. 106).

Since that time Professor Harris and his party of students have traced typical 'Grand Gulf' sandstones beneath the Oak Grove Oligocene sands near Oak Grove, Santa Rosa County, Florida, as already mentioned.

I have no prejudice as to the application of the name Grand Gulf to any particular series to which it can be shown to belong, but I am not convinced that Professor Smith and Mr. Aldrich, in restricting the name in the manner and to the stratum now proposed, have shown proof of its identity with the original formation described by Wailes. I feel certain that the Pleistocene age of Wailes' formation is unproved. I believe it to be unlikely, and, in view of the record as above summarized, I feel justified in referring it, as heretofore, to the upper Oligocene, pending more exact and ample information.

WM. H. DALL.

SMITHSONIAN INSTITUTION,
July 6, 1903.

ANSWER TO PROFESSOR COCKERELL, REGARDING HIGHER EDUCATIONAL INSTITUTIONS OF NEW MEXICO.

TO THE EDITOR OF SCIENCE: Professor T. D. A. Cockerell has made some statements in his article on the condition of affairs at the New Mexico Normal University which appeared in your columns May 8, which seem to me can hardly be passed without notice. I do not care to discuss the matter which Professor Cockerell presents concerning the conditions at the College of Agriculture and Mechanic Arts or at the Normal School at Las Vegas. It is always unfortunate when there is a lack of harmonious relations between a board of regents and the president or faculty of any institution, and still more unfortunate when such relations are the result of political influences. There is no doubt but at times great injustice results to individuals and great harm to the institution and the broader cause of education. Few institutions of any considerable age have not had some differences arise between their managing boards and their faculties at some time in their history, and no institution can boast that its organization is such that it is entirely safeguarded against any such unfortunate condition in the future. It must be recognized, however, that such breaches in the harmonious administration of the affairs of an institution are usually very short-lived. The organization of our public institutions may be such that they are more susceptible to such outbreaks than others, but it is to be doubted. In the public institution it is usually politics which interferes; in private institutions it is personal prejudice; in denominational schools it is denominational creed or religious difference. The character of the factor may vary, but the result is nearly the same. In all such cases it can usually be shown that some one has abused the powers and privileges of a position of authority. In public institutions all parties, from the governor, who usually holds the appointing power to membership on the board of regents, down to the student in the class-room, are servants of the people, and all are working under a regularly established system of laws. These laws determine the authoritative ranking of each. Each party has a duty to the subordinate elements of the organization, and an obligation of obedience to the superior in rank. In most institutions these duties and obligations are usually well defined by law.