most quickly reaches a very sensitive state of instability and perhaps the sun-heated air on the rising slope of a mountain may determine the start of the atmospheric overturn. As the atmospheric collapse spreads over the continent its character may be greatly influenced by the degree of instability existing in the regions over which it passes and by the existence of independent storm movements. Furthermore it is known to be the case that a typical cyclone in the United States causes a great mass of warm air to be gathered near the earth's surface on its southeast front and when this mass of warm air and the overlying cold air make a summersault a tornado (cyclone, popularly called) or severe local disturbance is the result.

Our dominoe storm, to carry our analogy further, might be inaugurated with indefinitely small effort at a time when the system is ready for a more or less complete collapse, and the trend of the collapse could be controlled not only by choice of time and place of starting the collapse, but also by starting independent collapses at other times and places, and the control of weather must likewise consist of proper starting of storm movements and of their proper modification by independently inaugurated movements.

Reports are coming to us from southern Europe of the control of hail storms by means of a special form of cannon which throws a large vortex ring at high velocity into the upper atmosphere. In many details these reports are absurd, while in other details they are by no means absurd, although it must be admitted, if we credit the reports, to be a very remarkable fact that this first crude trial to control the weather—for it is the first that conforms at all to the physical requirements of the case—should be in so large a measure successful.

The problem is to upset the increasing instability of the atmosphere on a hot summer's afternoon before the beginning of that particular type of collapse, whatever it may be, that constitutes a hail storm, to set the sky off half-cocked as it were, and it is hard to think of a better means for starting a collapse of an unstable atmosphere than the smoke-ring cannon of Burgomaster Stiger. A simple concussion or loud sound is not at all effective. The thing that is necessary is not a momentary to and fro motion of air such as accompanies a sound wave and which is very slight even in a sound wave of exceedingly great intensity, but an actual transfer of air from one place to another, such as is produced near the muzzle of a gun in what is called the blast, or such as is produced by a vortex ring.

It seems to be within the range of possibility that Stiger's cannon may be a means for controlling all kinds of storm movements.

W. S. FRANKLIN.

REVIEW OF TWO RECENT PAPERS ON BAHAMAN CORALS.

TO THE EDITOR OF SCIENCE: It was my pleasure to visit the American Museum of Natural History in New York during the first week of September, and through the courtesy of Professor Whitfield to examine the recent species of West Indian corals in that institution.

I saw two specimens that have recently been described by Professor Whitfield, and after having received copies of his papers, desire to make some remarks on them.

The first paper is entitled, 'Notice of a Remarkable Case of Combination between Two Different Genera of Living Corals,' *Bull. Amer. Mus. Nat. Hist.*, Vol. XIV., Art. XVII., pp. 221, 222, pls. XXXI., XXXII. (date, July 29, 1901). Professor Whitfield considers his specimen a combination of *Meandrina labyrinthica* and a *Ctenophyllia* which he says is perhaps nearest to *Ctenophyllia quadrata* Dana.

Are two genera represented? Most emphatically no! The *Meandrina* of Milne-Edwards and Haime (not Lamarck, 1801) is characterized by possessing distinctly toothed septa and a spongy columella, in which may be a lamellar element connecting one calicial center with the next; the series are variable in length, often very long, and usually sinuous. The wall between adjoining series is simple (not double as in *Diploria*). The septa and wall are imperforate. Pali may or may not be present; they are not of specific value in this genus. An examination of plate XXXII. will show that there are no generic differences in the specimen figured.

The genus *Ctenophyllia* Dana (= *Meandrina* Lamarck, 1801, + *Pectinia* (pars) Oken, 1815, + *Meandrina* (pars) Lamarck, 1816, + *Ctenophyllia* Milne-Edwards & Haime, 1848, + *Pectinia* Milne-Edwards & Haime, 1851 and 1857) was proposed for four species, *C. pectinata*, *C. quadrata*, *C. pachyphylla* and *C. profunda*. Dana explicitly states that the septa are 'entire or nearly so.' He also says, "This group appears to be related to the Euphylliæ and has been placed in the same subfamily with them." Dana was absolutely correct in his characterization and in his understanding of the systematic relations of the genus. The *Ctenophyllia*, perhaps *quadrata*, of Whitfield differs utterly from Dana's genus *Ctenophyllia*, and according to nearly every modern student of zoophytes it would not be placed in the same family.

It can be seen, by examining the plates, that the valleys and collines of the central portion of the colony are directly continuous with those of the surrounding portion. The differences consist in the absence of pali, and in the larger collines and larger valleys in the central portion. The specimen merely shows the variation which may take place within a single colony.

The second paper is entitled, 'Some Observations on Corals from the Bahamas, with a Description of a New Species,' *Bull. Amer. Mus. Nat. His.*, Vol. XIV., Art. XVIII., pp. 223, 224, pls. XXXIII., XXXIV. (date, July 29, 1901).

The 'new species' described is named *Diploria geographica*. It is merely a form of the very abundant *Diploria labyrinthiformis* (Linn.) emend. Esper (= *Diploria cerebriformis* (Lamarck)). The only difference is in its possessing more angular gyrations than are common in *D. labyrinthiformis*.

These two papers are reviewed because, in my opinion, such errors should be corrected as soon as possible.

T. Wayland Vaughan.
Smithsonian Institution,
Washington, D. C., Sept. 11, 1901.

TWO UNKNOWN WORKS OF RAFINESQUE.

Bibliography does not indicate that Rafinesque ever published a work entitled 'Florula Lexingtoniensis,' or, in fact, it does not seem known that such a work was even contemplated by him. There has been discovered in the herbarium of the Academy of Natural Sciences of Philadelphia a single signature of a work with the above title, consisting of pages 73–80 inclusive, and marked K. As the number of pages would indicate, it is a quarto, though of small size.

Perhaps this intended work met the fate of the 'Western Minerva,' another of Rafinesque's Lexington attempts in literature, which, with the exception of three copies, was suppressed by the printer, because, it is said, the amount of his bill was not forthcoming. It is odd, in any event, that no mention of a 'Florula Lexingtoniensis' was made in Rafinesque's other writings.

Another of Rafinesque's works of which no record seems to have been made is the 'American Florist,' of which at least two parts appeared, as there are two copies of the second part in the library of the above-mentioned institution. This 'Second Series' is also entitled 'Eighteen Figures of Handsome American and Garden Flowers. By C. S. Rafinesque, Philadelphia, 1832.' It is a large sheet, measuring from border to border 21½ by 17½ inches, bearing illustrations of *Arctium latifolium*, *Poteria sanguisorba*, *Betonica officinalis*, *Pyrus malus*, *Bryonia alba*, *Barbarea alliaria*, *Clinopodium vulgare*, *Chrysanthemum leucanthemum*, *Fraxinus quadrangularis*, *Agrostema githago*, *Melissa officinalis*, *Saxifraga granularis*, *Spartium scoparium*, *Buplevrum rotundifolium*, *Primula farinosa*, *Alchemilla alpina*, *Hedera helix*, *Cardamine pratensis*. The illustrations are much like those in his 'Medical Botany,' but are printed in black ink. They bear numbers 19–36, the first series, no doubt, holding numbers 1–18.

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RECENT ZOO-PALEONTOLOGY.

The present summer has been rich in paleontogical discoveries. The most notable event is the discovery of the body of a frozen mammoth which is now being conveyed to St. Petersburg. Expeditions in this country have been sent out from many of the larger museums, and Professor Von Zittel has sent one of