

to be repeated under other circumstances to determine this question more certainly. For example, if the camera were focussed sharply on a distant tree, and a negative taken during a violent thunder storm by a lightning flash while the tree is in motion, if the foliage comes out in detail with no perceptible motion shown, the continuance of the illumination would then be proved to be too short a time for its appearance. If, on the contrary, the leaves appear blurred as if moved, then the generally received notions concerning the instantaneous character of the lightning flash must be changed.

Or, if the camera should be focussed on a rapidly moving wheel, and a photographic picture be taken during its illumination by a lightning flash, then the peculiarities of the negative could be utilized, not only to determine the question of the greater or less duration of the flash, but even to measure the actual duration itself.

It will be observed that the method here suggested substitutes the sensitive plate of the photographic camera for the retina of the eye. From the results of Mr. Barker's photographs, it might be inferred that the former is far more sensitive than the latter. If this be the case, then the photographs thus obtained would furnish more precise means for measuring the duration of the illumination, and hence of the flash itself, than the method followed by Wheatstone and others.

The lightning flash contains so large a percentage of the blue rays of light, that we may fairly suppose that its actinic effects on a photographic plate would be more decided than with equally bright sunlight. This greater sensitiveness of the light of a lightning flash may perhaps account in some degree for the possibility of taking photographic pictures by its means, but it also equally explains the probability of the blurred foliage in Mr. Barker's views being actually due to their movement during the short time they were exposed to the camera, and thus disproves the approximate instantaneousness of the flash itself.

Central High School,

Phila., Nov. 20, 1885.

*Résumé of the Work of the International Geological Congress, held at Berlin,
Sept. 28 to Oct. 3, 1885. By Dr. Persifor Frazer.*

(Read before the American Philosophical Society, November 20, 1885.)

An abstract of the Proceedings of the late Geological Congress at Berlin has been published by the writer in *Science*; a fuller report is about to appear in the *American Journal of Science and Arts*. The report, containing all the documents relating to the work of the Congress, and only less complete than the official report, will be presented to the American committee whenever it meets. In the meantime, it will interest Geologists

to know at once, in a general way, what has been done, and also to learn of certain works which the Congress recommended and patronized, but did not undertake.

The map of Europe, colored geologically, will be issued in 49 sheets ; or 7 high and 7 broad. Each sheet will be 48 centimetres high and 53 cm. broad. The whole map will form a rectangle of 3.36 by 3.71 metres. Prof. Kiepert, of Berlin, is charged with the duty of making a topographical base from the very latest data. D. Reimer and Co. are the publishers. 900 copies are guaranteed by the Congress at 100 francs per copy, of which each of the great States of Europe, to wit : Great Britain, France, Germany, Austro-Hungary, Scandinavia, Italy, Spain and Russia is entitled to 100 copies. The remaining 100 copies are to be divided between the six small States, Belgium, Holland, Denmark, Switzerland, Portugal and Roumania. The other purchasers are to pay 125 francs a copy to the publishers. The scale of the map is to be 1 : 1500 000. A committee is charged with the duty of receiving the colored maps sent in by each country, and of harmonizing them so that they will make a connected whole. This committee consists of Messrs. Beyrich, Hauchecorne, Daubrée, Giordano, Möller, Mojsisovics, Topley and Renevier. But the Committee of Direction, which will really superintend this work, is composed of the first two named, who are on the ground and can better look after the publishing. It was proposed by the committee having in charge the adoption of a uniform system of coloration, that a greenish-gray tint be adopted for the Silurian (Cambrian included). This was warmly opposed and finally the section was altered so as to give the committee the discretion to adopt some *provisional* means of distinguishing the series at the base of the Paleozoic column, with the understanding that it should not in any way prejudice the final scientific decision of these questions. The divisions to be made of the Cambrian and Silurian combined will therefore be three-fold, and the three divisions will be different shades of greenish-gray. After the color questions were thus disposed of, M. Dewalque began the more radical questions of the actual divisions themselves. The measures below the Paleozoic column are to be called Archæan, and each geologist is to be left free to distinguish their separate divisions by petrographic characters, without as yet attempting to correlate them in different countries. M. de Lapparent did a notable service to science here by proposing that the term "Protogine" which was based upon no important or necessary characteristic, be once for all abolished. This motion was unanimously carried. The Silurian-Cambrian question again coming up, it was decided to leave the debate on the proper coördination of the series till the meeting in England, three years hence. In the meantime, the committee on the map was permitted to make the divisions as well as it could, but to give no names.

It was decided to divide the Devonian into the Rhenan, the Eifelian, and the Famennian. (2). That the Calceola beds should form part of the Eifelian, and that the upper limit of the Devonian should be drawn at

the base of the Carboniferous Limestones, *i. e.*, the system that includes the Psammites of Coudroz and the upper "Old Red." The question of associating the Permian with the Carboniferous provoked the most heated debate. Stur, Blanford, Lapparent, and Newberry spoke in favor of such association; Hughes, Topley, Nikitin and some others, against it. It was finally decided to leave the question as it was. The Triassic was divided into three parts, but without assigning to them any names.

The eruptive rocks were divided according to the scheme of Prof. Lossen, into seven divisions, one of which is "Serpentine." This part of the Congress's work appears not to have received the attention it deserved, as all the petrographers who were consulted by the writer as to the advisability of such a heading of a division, agreed that it was unfortunate. Among these were Profs. Zirkel, Stelzner, and among the other geologists, Profs. Hughes, Hall, and a great many others.

The Congress formerly approved and voted committees to assist two works of the nature of compendiums. The first of these is a Geographical-Geological Dictionary, by D. Juan Vilanova, Piera Professor in the University of Madrid. The committee appointed at the Bologna Congress to assist in this work consisted of MM. Hughes, Mayer-Eymar, Steinmann, Meli, Szabó, and Inostranzeff. M. Vilanova explained that this was merely an attempt of his to make a French-Spanish dictionary of terms, but he hoped that it would be taken up and improved upon by others, and that especially the parallel terms in other languages would be gradually grafted upon it. I should be glad of the assistance of the members of this Society in extending a knowledge of its scope.

The other work which the Congress appointed a committee to foster was Neumayr's *Nomenclator Palæontologicus*. The names of the members of this committee are MM. Gaudry, Zittel, Neumayr, and Etheridge.

On the Species of Iguaninæ. By E. D. Cope.

(*Read before the American Philosophical Society, October 16th, 1885.*)

By Iguaninæ I mean Iguanidæ* without abdominal ribs† or free dermal margins of the digits‡ which have the nostrils on the line of the canthus rostralis and not below it, and which possess the compressed form and other characteristics indicating an arboreal rather than a terrestrial habit of life. With one exception§ these animals are confined to the forest regions of Tropical America, the greater number of species being found in the West Indies and Mexico. A few species, as the *Conolophus suberis-*

* Exclusive of the Anolidæ, which I have shown to differ in the structure of the lower jaw. *Proceedings Academy, Phila., 1864.*

† Those with abdominal ribs are the Polychrinæ.

‡ The Basiliscinæ are characterized by the digital margins.

§ The *Brachylophus fasciatus* of the Feejee Islands.



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