not insist on the completed form? Why should pure latinity dread an excessive length?

Seriously, is not this a little too much—not too long, but too childish? It is only 45 years since a satirical rogue in the *Annals and Magazine of Natural History* suggested that incipient paleontologists might ease their brains by adopting such combinations as *Grayoconcha* and *Gouldornis*, for they would certainly never have been anticipated by any zoologist. Such sarcasm would not carry far to-day; we have by this time rivaled the imaginary *Unclesambocrinus* of the same critic.

Ridicule will never check people with no sense of the ridiculous. Are rules any better? Needless to say the original Strickland code never contemplated the possibility of such aberrations; it was opposed to all personal generic names in zoology. The British Association Committee of 1864 wished to reject *Cookilaria* and *Morrhua tomcodus*, and considered that 'specific names from persons have already been sufficiently prostituted, and personal generic names have increased to a large and undeserving extent'; both are classed as '*objectionable*.' The rules adopted by the International Zoological Congress of 1899 say that generic names must consist of a single word (art. 5); that they may be derived from either forenames used in antiquity, or from modern surnames (art. 6 *g*, *h*); that such names should not enter into the formation of compound words (art. 9); that when a surname is compound, only one of its components is to be used, *e. g.*, *Edwardsia* not *Milne-Edwardsia* (art. 7) and certainly never *Milnedwardsia* (art 11). But *Amilnedwardsia*—!

It is perfectly obvious that the whole spirit of these rules is totally opposed to the action of Ameghino, and if their letter is not so too it is only because there are some things so ridiculous that nobody has ever dreamed of legislating against them. It remains to be seen whether the dignity, the common sense, and the fellow-feeling of zoologists are strong enough to ignore these Florentinameghinisms, which we should expect to see in some penny-a-liner's pseudo-scientific paragraph for a Sunday paper, rather than in the publications of a National Academy. F. A. B.

SOME REMARKS ON PRESIDENT D. S. JORDAN'S ARTICLE ON THE GEOGRAPHICAL DISTRIBUTION OF FISHES.

Professor D. S. Jordan has called attention to a number of highly interesting points in the geographical distribution of fishes,* and I should like to add a few remarks relating to some of the questions discussed.

1. *Similarity of Japanese and European (Mediterranean) forms.*

Although, according to Professor Jordan, this similarity does not seem to be so very much pronounced among fishes, we have other groups of marine animals in which the same striking fact has been noticed. The present writer has lately called attention to this with reference to the Decapod Crustaceans,† and has expressed the opinion that the connection of Japan and Europe by a continuous shore line was along the northern shores of Siberia, in a geological past when the climate of the circumpolar regions was a warmer one, so that at least subtropical animals could exist there. The continuous circumpolar distribution of the ancestors of the respective forms was broken up by the cooling of the pole, the species retreated southward, and found only in the Mediterranean and Japanese seas a congenial climate, where they continue to exist as *relics* of a former circumpolar distribution. Professor Jordan has apparently not taken into consideration this explanation, which might possibly also be advanced for some of the fishes of Japan and Europe.

2. *The submersion of the Isthmus of Suez.*

That there was no important connection between the Red Sea and the Mediterranean after the middle of the Tertiary is a well-known view. Hull‡ has demonstrated that the faunas of both seas were disconnected since Miocene time, but that in the Pliocene there was again an incomplete connection across the Isthmus of Suez by very shallow water. This agrees well with Professor Jordan's conclusions. Before Miocene, however, there must have been a wide

* 'The Fish Fauna of Japan, with Observations on the Geographical Distribution of Fishes,' Science, No. 354, October 11, 1901.

† Bronn's 'Klassen und Ordnungen des Thierreichs.' Arthropoda. Bd. 5, Abt. 2, p. 1,267. 1900.

‡ *Nature*, Vol. 31, 1885, p. 599.

and important communication between the Indian Ocean and the Mediterranean, as is shown by several interesting cases in the distribution of Crustaceans,* although it is impossible to say whether what is now the Isthmus of Suez played an important part in this question; the connection may have been somewhere else.

3. *The Cape of Good Hope as a zoogeographical barrier.*

Professor Jordan does not believe that the Cape of Good Hope offers an absolute obstacle to a migration of tropical Indo-Pacific species into the Atlantic. I do not hold the same opinion. Indeed, we know that the tropical fauna of the Indian Ocean extends southwestward along the coast of Natal and the Cape Colony, and some elements of it go even as far as Cape Town. But if we follow the shore line from here northward, along the western coast of Africa, we meet a considerable change of the climatic conditions, for from this point almost to the equator cold water is found. While it is thus true that the fauna of the Cape of Good Hope, as President Jordan says, shows a general relation to that of India and Australia, this applies only to the southern and the southeastern shores of the Cape Colony, while the western (Atlantic) side, together with the adjoining coast of southwest Africa, about as far as the mouth of the Congo, forms an impassable barrier to this tropical fauna of the Indo-Pacific.

4. *The Isthmus of Panama.*

It is beyond doubt that the Atlantic and Pacific Oceans were once connected with each other within the tropics: this connection existed up to the middle of the Tertiary, and it was closed during Miocene times. For this general assumption we possess an overwhelming mass of evidence. The question remains: Where was this connection of the two oceans situated? Formerly it was the general trend of opinion to assume a former depression of the Isthmus of Panama, but since Dr. R. T. Hill has shown that there are serious objections to this on geological grounds, we have to modify this theory. The present writer has tried † to do so with respect to v. Ihering's Archiplata-Archhelenis theory; the connection of the Atlantic and the Pacific in the Tertiary times was identical with the 'sea separating Archamazonas and Archiplata, that is to say, across the South American continent about where there is now the Amazonas valley'—the Cordilleras not existing then.

5. *Explanation of the distribution of Galaxias.*

The genus of freshwater fishes, *Galaxias*, is represented only in South Australia, New Zealand, South America and South Africa,* and it has been taken as one of the instances which demonstrate the former connection of these parts by land, the Antarctic continent. Professor Jordan hesitates to accept the latter, and his chief arguments are: (1) That this supposed continental extension should show permanent traces in greater similarity in the present fauna both of rivers and of sea, and (2) that geological investigation must show reasons for believing in such radical changes in the forms of continents.

As to the first point—although this connection is quite remote in time—the cases of similarity in the present marine, fresh-water and land faunas are *very* numerous, and there is hardly any larger group of animals where such are lacking. This fact has been discussed by a large number of writers,† and the wealth of evidence brought to light compels us to recognize this Antarctica theory as well established. As to the second point, the geological proof for existence of 'Antarctica,' I refer only to Professor J. W. Gregory,‡ who has shown that the tectonic configuration of Australia, New Zealand, South America and Antarctica —as far as we have any knowledge of the last—only tends to support the assumption of a former connection of these parts. That there is, generally speaking, ample reason for believing in 'radical' changes in the form of continents during the earth's history, has been demonstrated by geologists long ago, although it has become almost a fashion among biologists to disregard this line of evidence.

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* See Ortmann, l. c., p. 1276.

† In SCIENCE, No. 311, 14 December, 1900, p. 929.

* South Africa is not mentioned by Professor Jordan.

† The most important are mentioned by the present writer in the *American Naturalist*, 35, No. 410, Feb., 1901.

‡ *Nature*, Vol. 63, 25 April, 1901, p. 609.