the history of nomenclature; in other words, as off-hand opinions as to what seemingly ought to be, regardless of the actualities of the case.

Nomenclature (both zoological and botanical) has attained its present stage of comparative orderliness by slow stages of development. For the first seventy years of its history such a concept as a "genotype" appears to have been rarely, if ever, thought of; and it was not until the first quarter of the nineteenth century had passed that types of genera began to be considered as a necessary part of the proper basis of a genus. Prior to 1810 hundreds of genera now in current use were proposed solely on the basis of a diagnosis; although they were accepted and have been in use from the date of their proposal, many of them were without designated types for half a century. Yet the authors of this early period were in substantial agreement as to what groups of species these generic names were intended to include. From the modern viewpoint these genera were (usually) heterogeneous groups, each comprising several modern genera. In the process of division a type was sooner or later, by restriction or by actual designation, assigned to the original genus. Not till then did the genus, from the modern viewpoint, become properly established. Many other genera of this early period, similarly proposed, are unidentifiable. I can not agree that these two categories should have the same treatment. Nor can I agree that a long-accepted genus must date from the author who, long after it was originally founded, "validated" it by designating a type for it; but rather, as indicated in the first part of this communication, that the genus should date from its founder. Otherwise nearly all of the early genera for birds would date from about 1840, after many of them had been in general use for one half to three fourths of a century. In the case of mammals, many of the early genera were not thus "validated" till many years later than those of birds. To take genera from the date of "validation" would obviously establish a new source of trouble in relation to priority of names.

It is now the custom of a large number of nomenclators to make a distinction between a nomen nudum and a name that is for any reason unidentifiable;[4] the former can be employed by a later author, from whom it must date; the latter can not be again used, the attempt at a diagnosis, however brief or inadequate, precluding its subsequent employment. Hence a name founded on a diagnosis, and subsequently validated, can not be taken from the validating author, but must date from the founder, if this rule be followed. Furthermore, to call a genus a nomen nudum when based on a diagnosis is a misuse of language, and entirely contrary to usage.

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The Origin of the Moon

In his inaugural lecture delivered in Columbia University, November 3, 1908,[1] Dr. Albrecht F. K. Penck, the Kaiser Wilhelm "Umtausch" Professor, spoke in part as follows concerning the geographical and geological similarities between the eastern coast of North America and the western coast of Europe:

These similarities between Europe and peninsular North America are not merely superficial ones. *In a very remarkable way, these two sides of the Atlantic repeat the same structural features;* there is an astonishing symmetry, as Eduard Suess has shown so clearly. The northeast of Canada and Labrador on one side, and Scandinavia with Finland, the region of Feno-Scandia, on the other, are both composed of the oldest rocks we know of. These have a very complicated structure, being intruded with many eruptive rocks, and in a secondary way only, the surface features of the above regions are dependent on their structure. Both regions had already been leveled down before Cambrian times, and they sink gently down under a cover of horizontal Paleozoic strata. Both were called by Suess shields. The resemblance between these shields is the more conspicuous because both were covered during the last ice age by a glaciation which molded their surface in a similar way. In Sweden and Finland we find the same rounded

[4] See Revised A. O. U. Code, Canon XXXIV., and the explanatory "remarks."

[1] For the whole lecture see Science, February 26, 1909.

glaciated surface, the same numerous lakes, as in Canada, both regions of the earth claiming to be the land of the many thousand lakes. At the border of both regions the horizontal Paleozoic strata begin with an escarpment which is pronouncedly developed south of Lake Erie and south of the Gulf of Finland, called here the "glint," and we shall keep this expression to designate similar escarpments. These strata continue far into the interior of Eurasia, and they do the same in North America.

And again:

It is very interesting to see how the Appalachian region ends at Newfoundland, forming the projecting eastern corner of North America, and just opposite in south Ireland, in south Wales, in Cornwall and in Brittany the belt of the old Hercynian Mountains of Europe begins. One seems to be the continuation of the other, and such an excellent geologist as Marcel Bertrand maintained that *we have here to deal with the two ends of one very extensive belt of mountains which extended through the North Atlantic Ocean. But we must not forget that the missing link between both ends of these supposed mountain chains is longer than their known extent.* (The italics are mine.)

It seems to me that these and other parts of his lecture throw an interesting light on the theory of the moon's terrestrial origin. In brief, the theory is that when the earth had cooled from its molten condition sufficiently to have a crust of solidified matter something like thirty miles thick over its entire surface, it was revolving so rapidly that gravitational attraction and centrifugal force practically balanced each other. For some reason, perhaps some vast and sudden cataclysm, a large portion of this crust was thrown off the earth, and by tidal action was forced gradually outward in a spiral path. In order to form the moon, a mass of this crust about thirty miles thick and of area nearly equal to the combined areas of the present oceans on the earth must have been thrown off. It is supposed that this immense amount of crust was largely taken from the present basin of the Pacific, and that the remaining parts of the earth's crust, while it still floated on a liquid interior, split along an irregular line into two pieces which floated apart, and the gap between these two parts was later filled with the waters of the Atlantic. Many reasons are advanced for the probability of this theory—the fact that the two coasts of the Atlantic have the same contour, the identity between the density of the moon and that of the earth-crust, etc. Professor Penck is evidently not considering this theory at all in his lecture, and yet it seems that what he, approaching the problem from a geographical standpoint, has to say about it, lends a greater probability to the theory. As he says, the Appalachian region ends at Newfoundland, about the latitude of 50° north, and just opposite, in Great Britain, on the same latitude, the same region seems to continue. If the theory of the terrestrial origin of the moon, outlined above, be accepted, we can explain this phenomenon much more simply than did Bertrand, and need not suppose the range to extend across the bed of the Atlantic at all.

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SCIENTIFIC BOOKS

Scientific Ideas of To-day. A popular account of the nature of matter, electricity, light, heat, etc., in non-technical language. By CHARLES R. GIBSON. Pp. 344; illustrated. Philadelphia, J. B. Lippincott Company. 1909.

This book is one which would justify a favorable estimate from almost any other point of view than that which the present reviewer chooses to take. Thus, William E. Rolston gives a favorable estimate of the book in his review of it in *Nature;* indeed many sections of the book are such as to demand a favorable estimate from any point of view. For example, the description in terms of the electron theory of what takes place when glass is rubbed with silk or when zinc is dissolved in a voltaic cell (see pages 73–79) is as clear as any one could wish to have it; and in many cases the "scientific ideas of to-day" which are elaborated in the book are applied at once to the analysis of actual phenomena. But some weeks after looking over the book, I came upon what to me seems to be a very significant paper by Professor William James, "On a