as work done by solution (3)
as chemical removal by all agents (1)

Comment on these examples is scarcely necessary, but it might be added that this list does not by any means exhaust the definitions that might be quoted, as reference to Gregory's article will show.

The definitions suggested by Gregory are as follows:

denudation = the wearing down of the land by any agency whatever.
erosion = the widespread lowering of the land by wind, rain and weather, and by rivers and glaciers acting *laterally*.
corrosion = the excavation by rivers and glaciers of their beds.
corrasion dismiss as a synonym for corrosion.

These definitions are unsatisfactory in many respects. To separate the lateral and vertical degrading action of rivers and include only the former under the term erosion is not only unnecessary, but highly artificial. Indeed, a satisfactory definition of erosion will be an exceedingly difficult matter to accomplish, for the reason that the word has come to be used in two different senses: one broad sense in which it signifies the general process of the wasting of the land surface and is thus equivalent to denudation, as exemplified in the definition of Davis,[9] and a much narrower sense common in geological literature in such phrases as "ice erosion," "wind erosion," etc. The only solution of this difficulty would appear to be to use "denudation" for the general process and restrict "erosion" to the narrower meaning of gnawing or cutting away.

A general term for the action of rivers and glaciers on their banks and beds seems desirable, and for this purpose the word corrasion is much preferable to corrosion, since the latter has a distinctly chemical implication. There seems to be, on the other hand, no good reason for using separate terms for the lateral and vertical wearing action of streams and glaciers, since the adjectives lateral and vertical prefixed to corrasion would amply distinguish the two processes.

There would also appear to be room for the term corrosion as used by Grabau to denote the chemical removal of material by any or all agents, solution being a part of this general process, and confined to the action of water.

However these various terms be used eventually, the need of rescue from the hopeless confusion and ambiguity of the present is undeniable. The Geological Society of America found it advisable to standardize the nomenclature of faults; should it not also be the duty of that organization, or, better yet, of an International Congress of Geologists, to take official notice of the ambiguous meanings of the words denudation, erosion, corrasion and corrosion, and establish precise and authoratative definitions of these much-abused terms?

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[9] Davis and Snyder, "Physical Geography," p. 105.

EUCLID OF ALEXANDRIA AND THE BUST OF EUCLID OF MEGARA

During the middle ages and later, it was the ill fortune of Euclid, the mathematician, to have been confounded with Euclid of Megara who lived about a century earlier and was not a mathematician. As if this confusion were not sufficient to tantalize mathematicians in general, another mistake came to be made, involving the same two Euclids. This time a bust found on a Greek coin, which according to numismatic authorities is really aimed to represent Euclid of Megara, came to be published broadcast as the picture of the mathematician of Alexandria. This happened in England where William Whiston, who was Sir Isaac Newton's successor in the Lucasian professorship of mathematics at Cambridge, brought out a school edition of Euclid containing as a frontispiece this bust, said to have been taken from a bronze coin once in the possession of Queen Christina of Sweden.[1] Unfortunately this same picture

[1] For the history of Queen Christina's Coin Collection, consult an article by Hugo Gaebler in the

which on the coin is circumscribed by the name ΜΕΓΑΡΕΩΝ, *i.e.*, of the Megarians, has been published in the United States as representing Euclid the mathematician. This unintentional historical misrepresentation appears in the publication, "A Portfolio of Portraits of Eminent Mathematicians" (1896), issued by the Open Court Publishing Company, in Chicago, a firm which in general has done as much as any other in America to advance a sound knowledge of the history of mathematics. The picture of Euclid of Megara is given as that of the mathematician, Euclid. In the memorandum accompanying the picture occurs the statement, "the name Megara is frequently coupled with his [name] on the early portraits as in this case."

The statement just quoted, in so far as it relates to the coin portrait in question, is in conflict with numismatic authority. A specimen of the coin referred to is in the British Museum and has been described by the great authority on coins, Barclay V. Head, who speaks of this coin as follows:[2]

> ΜΕΓΑΡΕΩΝ. Bearded head of the philosopher Eucleides of Megara, veiled and wearing ear-ring. . . . This remarkable type refers to the story that Eucleides attended the lectures of Socrates in the disguise of a woman, the Athenians having passed a decree that no citizens of Megara should be admitted within their walls. (Aulus Gellius, *Noct. Att.*, VI., 10.)

In his catalogue of Greek coins Head[3] quotes the Latin passage from Aulus Gellius, the Roman writer of the second century A.D., referred to above, who had studied at Athens. The passage tells the story of Euclid's going to Athens disguised in a "tunica longa muliebri" to attend the lectures of Socrates and of his returning to Megara the next day in the same disguise. In this book Head gives the date of the coin as "Cir. 146 B.C. or later"; in his *Historia,* quoted above, he gives, "Imperial Times?". While Head thus expresses uncertainty as to the exact age of the coin, he entertains no doubt as to the head-dress representing woman's apparel that was worn by Euclid of Megara when on his way to and from the lectures of Socrates.

It is therefore established with as great certainty that this coin does not give the bust of the mathematician Euclid as it is established that this mathematician was not Euclid of Megara.

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RAINBOW BY MOONLIGHT

TO THE EDITOR OF SCIENCE: In connection with the case of the rainbow at night reported by Frank L. Griffin in SCIENCE of March 11, the following case may be of interest: At Burge, Nebraska, a rural post office about eighteen miles southwest of Valentine, on September 4, 1917, at about 9 P.M. a rainbow appeared. The moon had risen about an hour previously and a thunderstorm was coming up in the west, the rest of the sky being clear. A rainbow began to form and it continued to become brighter until a complete arch was formed. It was very distinct, but was nearly white and showed the prismatic colors very faintly if at all.

C. J. ELMORE

QUOTATIONS

BRITISH DYESTUFFS CORPORATION

THE situation in which the directorate of the British Dyestuffs Corporation finds itself is a remarkable one. At the registration of this company in May, 1919, as a result of amalgamating British Dyes, Ltd., of Huddersfield, with Messrs. Levinstein, Ltd., of Blackley, the appointment of Sir Joseph Turner as

"Corolla Numismatica . . . in Honour of Barclay V. Head," Oxford University Press, 1906, pp. 368–386.

[2] "Historia Numorum, a Manual of Greek Numismatics," by Barclay V. Head, Oxford, 1911, p. 394.

[3] "Catalogue of Greek Coins, Attica—Megaris—Aegina," by Barclay V. Head, D.C.L., Ph.D. Edited by Reginald Stuart Poole, LL.D., London, 1888, p. 121. See a drawing of the coin in Attica, etc., Plate XXI., 14.