

February 2, 1949

Dr. M. K. Elias
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The University of Nebraska
Lincoln 8, Nebraska

Dear Maxim:

In response to your letter of January 21 concerning Waagen's publication, the question of a continuous vs. a discontinuous change does not enter Waagen's discussion and I doubt whether he had any definite ideas concerning this question. At least no statement to that effect can be found in the publication as quoted by you. However, the following sentence seems to indicate that he favored a continuous change. From this publication, one can derive the following definition of Waagen's terms.

Varietat of Waagen 1869 = synchronous variants or synchronous subspecies

Mutation of Waagen 1869 = heterochronous variants or heterochronous subspecies or heterochronous species of one and the same single phyletic lineage

"Usually the differences between the several mutations is so much the more minute, the closer connected the beds appear, from which the specimens originate."

It is rather unfortunate that the word "mutation" has been used but so many people with a totally different meaning so that one nowadays is inclined to think of discontinuous mutations as soon as one reads the word. However, it should be borne in mind that discontinuous mutations were not thought of, I believe, until Devries, that is, many years after Waagen.

Sincerely yours,

H. B. Stenzel

HBS:etm