COMMENTS
by Readers

In a recently published article by Rake, Alexander, and Hamre (*Science*, October 26, 1945). the following statement was made: "It would seem most probable that the agent of heart-water fever, while not distinctly either a Rickettsia or a member of the lymphogranuloma-psittacosis group, is related to both."

In a tentative classification of the cytotropic viruses of the *Chlamydozoa-Rickettsiae* group (*Adv. mod. Biol.*, 1945, **19**, 1–44), I have indicated that the causative agent of heart-water fever differs from the classical *Rickettsiae* and agrees with the organisms of the family *Ehrlichiaceae* in its dimensions, in sensibility toward the action of the sulfonamide drugs, and especially in its aptitude to provoke the formation of vacuoles in the host cell, including the aggregated elementary bodies representing the parasite.

The subgeneric name *Cowdria* (in honor of Edmund V. Cowdry) was therefore proposed for this organism, and the necessity of separating it from the genus *Rickettsia* was taken into consideration.

I can thus fully agree with the authors of the above-mentioned article on the close parentage between the causative organism of heart-water fever and the members of the lymphogranuloma-psittacosis group belonging, according to the named classification, to the subgenus *Ehrlichia* (*Myiagawanella*).

The striking resemblance between the agent of heart-water fever and *Ehrlichia kurlovi* as to the dimensions of the single elementary bodies, the production of vesicles in the affected cell, and the tendency to assume a bacilliform appearance is clearly visible in the illustrations of my article (*Adv. mod. Biol.*). During Dr. R. Weigl's visit to Moscow, I was able to show him preparations of *E. kurlovi* which were indistinguishable from *R. ruminantium*.

On the other hand, the agent of heart-water differs from the members of the genus *Ehrlichia*, including the subgenus *Ehrlichia* (*Myiagawanella*), in its histotropism and the mode of propagation. Its antigenic differences have also been recently established (*Science*, October 26, 1945).

On these grounds we propose to raise the subgenus *Cowdria* to the rank of a genus, intermediate between the families *Rickettsiaceae* and *Ehrlichiaceae*, having in common with the first the tropism to the cells of vascular endothelium and sharing with the second the localization inside vacuoles formed in the cytoplasm of the host cell. The specific name of the agent of heart-water fever will then be *Cowdria ruminantium* nom. nov., and the diagnosis of the genus *Cowdria*: cytotropic organism, coccoid with a tendency toward formation of bacillar forms; characteristic localization in the form of clusters inside vacuoles in the cytoplasm of vascular endothelium. (SH. D. MOSHKOVSKI, *Institute of Malaria and Medical Parasitology, Moscow, USSR.*)

Any fungus that causes decay of heartwood is a pathogen. This thesis is an incident of my interest in the problem of competition between sprouts and seedlings in the forest. It is my view on decay as one of the factors in the decadence of coppice. The entire causal basis of the superiority of seedlings over sprouts is probably within the realm of developmental anatomy (private publication of author, February 1947, on "The nature of the seedling and sprout growth forms").

A large volume of literature on the subject of developmental anatomy has appeared in recent years. Bailey, Chalk, Cockerham, Elliot, Priestley, and others have probed into the subject. Their work on the stele and their studies on the influences of environmental factors on developmental anatomy have enriched the field of botany and given us useful tools of knowledge. My own studies on the effects of temperature and rainfall indicate that the speed and the degree of differentiation of tissues can be influenced by external factors ("Studies on breakage of apple trees," unpublished, Pennsylvania State College, 1936).

The entire subject of meristems, development, and behavior is in a state of flux. The complex pattern of interwoven threads of the origin, organization, form, mass, and location of a meristem, in relation to the appearance of axes, leaves, and blossoms, the form and size of organs, and the organization and extent of primary and secondary tissues, is slowly becoming apparent. It is obvious, however, that the locations, kinds, and human uses of initials are still problems and not findings. Discoveries are largely in the realm of the future (*Science*, October 4, 1946, p. 329; *Bull. Torrey. bot. Club*, 1936, **63**, 259–265).

With regard to the thesis posed above, heartrot is more likely an indirect rather than a direct cause of failure in coppice. Though a tree may be broken by the wind, or may fall of its own weight after heartrot has spread in the bole, a tree so weakened has lost its competitive power before the mechanical defects are obvious. From the time it appears in the wood, heartrot will interfere in a cumulative manner with normal development, through retardation of the developmental processes, with consequent reductions and changes in the amounts and types of tissues that form. By reducing the capacity of heartwood to act as a water reservoir, especially during the latter part of the growing season, the progressive spread of decay will interfere with the production of, and differentiation in, tissues and therefore with the movement of water and the translocation of solutes. Such interference with movement, through retardation of transportation capacity, will influence adversely the developmental anatomy of the plant. Given such a situation, any fungus that causes heartrot is a pathogen. (ISADOR AARON, *P. J. Oesterling & Son, Inc., Butler, Pennsylvania.*)

The word *nuclide*, derived from *nucle-* (nuclear) and *εἶδος* (species), is defined as "a species of atom characterized by the constitution of its nucleus." It is proposed that this term be used for the concept in question in place of such incorrect or inconvenient expressions as *isotope*, *nucleus*, *atomic species*, and *nuclear species*. A more detailed discussion is being published in the *American Journal of Physics*, July–August 1947, **15**. (TRUMAN P. KOHMAN, *Institute for Nuclear Studies, University of Chicago.*)