

in *Octopus vulgaris* and *Octopus macropus* and identified all the dicyemids found by him and those described by previous authors from other cephalopods as members of a single species, for which he proposed the name *Dicyema paradoxum*. The genus, as erected, was monotypic and *D. paradoxum* is the type species. The observations and descriptions of von K  lliker appear remarkably accurate and complete when compared with zoological reports of a century ago.

Subsequent investigations, however, have shown that *D. paradoxum* of K  lliker was a complex of several species. Van Beneden (*Bull. Acad. Roy. Belg.*, 1876, 41, 1160–1205; 42, 35–97) restricted the genus *Dicyema* to parasites of octopuses; those from *O. vulgaris* were designated as *D. typus* and those from *O. macropus* as *D. clausianum*. The name *D. paradoxum* was omitted. Holding a view diametrically opposed to that of von K  lliker, van Beneden believed in absolute taxonomic correlation between hosts and parasites. New genera were erected for the dicyemid parasites of each genus of cephalopods other than *Octopus*, and the parasites of the several cephalopod species were regarded as distinct. In van Beneden's system the family Dicyemidae consisted of 4 genera and 7 species. Species described by Wagener (*Arch. Anat. Physiol. wiss. Med.*, 1857, 344–364) were redescribed and renamed when assigned to the new genera. Whitman (*Mitt. zool. Stat. Neapel*, 1882, 4, 1–89) described additional new species and showed that van Beneden's idea of strict host-parasite specificity was erroneous; that the same species could infect more than one host species and that a single host could harbor more than one species of parasite. Whitman was meticulous in restoring names proposed by Wagener for species that had been renamed by van Beneden. He stated (p. 4): “. . . in systematic zoology the claims of priority are not to be superseded by those founded on accuracy of description.” But van Beneden had also renamed the parasites described by von K  lliker as *D. paradoxum*, recognizing two species which he designated as *D. typus* and *D. clausianum*, respectively. Whitman accepted these names, and they have been adopted by subsequent authors. Nouvel (*Arch. Biol.*, 1947, 58, 59–220) stated: “Pour K  lliker, le genre *Dicyema* comprenait tous les Dicy  mides connus (*D. paradoxum*). Quand Whitman a cr    un second genre (*Dicyemennae*), l'auteur a conserv  , pour l'un des genres, le nom de *Dicyema* car la description de K  lliker est pr  cis  ment fond  e sur deux esp  ces qui restaient dans le genre ainsi restreint.” It is clear, therefore, that the name *D. paradoxum* must apply to one of the two species now known as *D. typus* and *D. clausianum*. In an earlier paper, Nouvel (*Bull. Soc. Hist. Nat. Toulouse*, 1946, 81, 169–174) redescribed *D. typus* as the smaller of the two species, with a smaller number of somatic cells (16–20), usually 18 or 19, and stated that in this species the diapolar cells never form pendant verruciform enlargements. According to Nouvel, *D. typus* occurs only in *Octopus vulgaris*, whereas *D. clausianum* occurs in both *O. vulgaris* and *O. macropus*. Moreover, Nouvel stated that earlier authors including van Beneden (1876), Whitman (1882), Hartmann (1906), Lameere (1914, 1916,

1918, 1919), and he himself in former papers, had identified individuals of *D. clausianum* as *D. typus*.

The International Code of Zoological Nomenclature provides that, if a species is divided into two or more restricted species, its valid name must be retained for one of the restricted species. Van Beneden (1876) did not admittedly divide the species *D. paradoxum*; instead, he redescribed the organisms as members of two distinct and restricted species for which he proposed new names, although both species were retained in the genus *Dicyema*. Indeed, they were the only species included in the genus. The procedure is clearly invalid, since the genus *Dicyema* is based on its type species *D. paradoxum*. Whitman and subsequent authors have perpetuated the error in accepting the two specific names proposed by van Beneden. Despite any disavowal, van Beneden virtually divided the species, and the name *D. paradoxum* must be retained for one of the restricted species which stands as type of the genus. As noted, either *D. typus* or *D. clausianum* must be relegated to synonymy. Since von K  lliker described and figured large individuals with prominent verruciform enlargements of the diapolar cells, it seems probable that his description applies more properly to the species called *D. clausianum* by van Beneden. Accordingly, *D. clausianum* van Beneden, 1876 is suppressed as a synonym of *D. paradoxum* von K  lliker, 1849.

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Enpony and Enchresy

There are 5 functions of great importance in thermodynamics: the energy, entropy, enthalpy, and the free energy functions of Helmholtz and Gilbert Lewis. The first two functions have no other names. The third was formerly called heat content, but the name enthalpy, from $\tau\omicron$ $\theta\alpha\lambda\pi\omicron\varsigma$ (heat), seems to win. Helmholtz free energy is a rather awkward name for a very useful function, and the matter was worse when Gilbert Lewis unfortunately used the term free energy for another still more useful function. The latter has also been called thermodynamic potential and Gibbs' function.

I think everyone who has been teaching thermodynamics or has written textbooks in physical chemistry has felt the need for not bigger, but better, names for the two last-mentioned functions. May I suggest that Helmholtz free energy, which measures the work obtainable from a system at a constant temperature, be called *enpony*, from \omicron $\pi\omicron\nu\omicron\varsigma$ (work). The system does part of this work against the pressure of the surroundings and, in many processes, only the remainder (German *Nutzarbeit*) is utilized. This “useful work” is measured by Lewis free energy, which might be called *enchresy*, from η $\chi\rho\eta\omicron\varsigma$ (use, utility). These new terms do not seem less euphonious than the three older ones, and they are, not liable to cause any confusion.

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