eased individuals as such do not enter. On the other hand we have the problem of the prevention of the spread of diseases from the sick to the well. In private practise we have, on the one hand, the treatment of sick individuals in whose welfare the public as such, aside from humane sympathy or the danger of attendant financial burdens, has no concern and, on the other hand, the treatment of individuals who so long as they are ill are of more or less danger to the community at large. The fields of the sanitarian in the prevention of the spread of disease from one individual to another and of the private practitioner in his care of individuals afflicted with communicable disease interweave. The duty of the public health officer is to see that such persons are cared for in a way that prevents so far as possible the spread of disease. The private practitioner attending such individuals is required to observe regulations in the interest of the public health. Questions of public interest should determine to what extent treatment of individuals by private practitioners should be supplemented by state officers. There certainly need be no fear that medical treatment furnished sane adult individuals for their own welfare by public officials will be forced on them at the expense of their individual liberty. In medical supervision in the public schools it has not yet been determined to what extent medical inspection of the school children should be supplemented by furnishing medical treatment at public expense, but such treatment is likely to increase in the future. In the assumption by the public of responsibility for the health of children as individuals, a responsibility that is beginning to extend back of the school years, public health duties are assumed which reach far beyond the control of contagious diseases and are of great importance to the welfare of the race. Perhaps some time we shall see in times of peace as effective a medical service as nations which desire success must have for their armies in times of war. Here we see no line drawn between services for preventive medicine and curative medicine. Fortunately our own army medical service has been able to furnish some of the most important recent advances in preventive medicine, of value alike in times of peace and times of war, an interesting summary of which has recently been given by Henry B. Hemenway.[1] It is noteworthy that the most important American contributions both to the science of public health and to the application of this science have been made by medical services which include within their scope research, prevention and treatment, the Army Medical Service and the Federal Public Health Service.

C. R. Bardeen

NOMENCLATORIAL CONSISTENCY?

Nothing more strikingly illustrates the hopelessness of unanimity among systematists on nomenclatorial matters than a footnote in a recent article by Mr. Hebard, *Ent. News,* Vol. XXVII., p. 17 (1916). Here he protests strenuously against the resurrection of the orthopterous genus *Pedeticum* of McNeill, which he maintains is preoccupied by the hemipterous genus *Pedeticus* of Laporte. But these two names do not conflict according to the apparent meaning of Article 36 of the International Rules of Zoological Nomenclature, where it is recommended that names even derived from the same radical and differing from each other only in termination are not to be considered as conflicting. Furthermore, opinion 25 of the International Commission bears directly on this subject, quotes from the above mentioned recommendations and decides that *Damesella* does not conflict with *Damesiella.* Dr. C. W. Stiles, the secretary of the International Committee on Zoological Nomenclature, and our foremost authority on nomenclature, when consulted regarding the matter of *Pedeticum* and *Pedeticus,* expressed the opinion that these two names should not be considered as conflicting. But Mr. Hebard contends that the ornithologists and mammalogists have long ago settled this matter, the one-letter rule being suppressed unless indicating different word derivation. This being true, how about those, including Mr. Hebard himself, who profess themselves followers of the International Rules? Is it to be assumed

[1] "American Health Protection," Bobbs-Merrill Company, 1916.

that they follow these rules as such rules are usually followed, that is only so far as they conflict with no personal opinion?

In the above-mentioned note Mr. Hebard expresses regret that well-known names should be changed on debatable grounds. In view of this statement it is interesting to note his use in the same paper, page 19, of the name *Schistocerca serials* Thunberg instead of *Schistocerca americana* Drury, a name in common use long before *Pedeticum* was erected. That the original inclusion of the species *americana* in the genus *Libellula,* which makes it a primary homonym of *Libellula americana* Linn., a true dragon fly, was a *lapsus* seems clear for several reasons, a matter too complicated for discussion at this time. However, even if granted as obviously a *lapsus calami,* there appears to be no definite authority in any code of rules for the setting aside of this reference. Thus Mr. Hebard's suppression of the name *americana* is accepted, but, until a decision is rendered on the case by the International Commission, the grounds upon which he suppresses it are certainly debatable, more so, in fact, than those upon which the present writer resurrects the genus *Pedeticum.* Indeed this action of Mr. Hebard would probably not be sustained by the International Commission if it acts on the case, as its decision would very likely agree with the private opinion of its secretary, Dr. C. W. Stiles, as stated in the authorized quotation here given from a letter written on April 10, 1916:

> . . . In the case of *Libellula americanus* Drury, 1770 (in index of later date) it seems clear that this is a *Lapsus calami.*
>
> Without attempting to commit the Commission to any view, I personally would not reject—especially at the present moment—a well-known name like *Gryllus americanus* seu *Schistocerca americana* because of an obvious *lapsus calami.*

Dr. L. Stejneger, also a member of the Commission on Zoological Nomenclature, authorizes the statement that his present views on this matter coincide with those expressed in the above quotation.

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THE CURRENT "DEFINITIONS" OF ENERGY

TO THE EDITOR OF SCIENCE: In a communication which appeared in a recent number of SCIENCE[1] Professor M. M. Garver criticizes the current definitions of energy, such as "the capacity for doing work," the "ability to do work," and the "power of doing work," on the ground that these definitions are not consistent with the concept of energy. The terms "capacity" and "ability" do not mean entities, while energy is not only a physical entity but it has the property of conservation.

It seems to me that Professor Garver's criticism is well taken, but the alternative he proposes is open to criticism also. For Professor Garver would have no definition of energy at all or, if it is insisted upon, he would have it based on the principle of the conservation of energy.

Energy is first introduced in text-books of physics as a mechanical concept. Therefore any definition of energy should form an integral part of a logically developed system of mechanics. It should be the direct and natural result of the dynamical concepts which precede it and should form an adequate basis for the new ideas which follow it. Further it should have such a form as to lend itself easily to a mathematical expression of the definition. Elementary mechanics is usually based upon postulates, such as Newton's laws of motion or the action principle, which involve the concept of force. Therefore the definitions of energy and momentum as well as the principles of the conservation of energy and of momentum should be made the direct consequence of the postulates which have been selected as the starting point of the development of mechanics. This necessitates the definition of energy as the "result of the action of force in space" and the definition of momentum as the "result of the action of force in time." In other words, energy should be defined in terms of work and momentum in terms of impulse. The definition of energy contained in the following extract fulfills these conditions. It is not only consistent, but has the advantage of leading to the mathematical expressions for kinetic and potential energy.

[1] SCIENCE, April 21, 1916.