Letters

Vivisection Bill

I have seen the letter from Bradley T. Scheer of Eugene, Ore., [*Science* **132**, 851 (23 Sept. 1960)] dealing with S. 3570, a bill providing for federal regulation of animal experimentation. I am much distressed over what I think to be oversights in his reading of the bill. It will be found, if one looks at the wording carefully, that S. 3570 permits the use of live vertebrate animals "only" for medical and military research. No experimentation for the pursuit of knowledge per se is provided for, and no authorization is given for use of animals even in agricultural, veterinary, or animal husbandry work. Use of live vertebrate animals in teaching is authorized only for student surgeons, and then only if the animals are not allowed to survive the surgery—an absurd and crippling restriction. Scheer's statement that he "cannot find in this bill the evils" that others see is especially surprising because it would prohibit him from using live vertebrate animals unless he connects his work with medical or military objectives.

Scheer stated: "the bill gives no police powers to HEW or anyone else. . . ." Perhaps Scheer did not read section 4I which states, "Authorized representatives of the Secretary . . . shall be authorized to destroy or require the destruction of animals in accordance with rules, regulations, or instructions issued by the Secretary." What is this, if it is not police power?

The worst part of the bill, from my point of view, is that it would put in the hands of the Secretary of Health, Education, and Welfare complete power over the character of animal experimentation that could be performed in the United States under federal subsidy which now means most of such work. We are presumably (and hopefully) a country ruled by laws and not men. Dictators (even benevolent ones) are anathema to us. It is perhaps true, as Scheer says, that the Secretary of HEW is unlikely to put the most rigid interpretations possible upon his authority if S. 3570 became law, but why should the United States take the risk of some Secretary impeding scientific research by doing so?

On the other hand, I do wish to say that I think I can understand why so many well-meaning people are favorably inclined to the ostensibly mild, but actually very drastic, provisions in S. 3570. Such bills appeal to everyone's humane instincts and we, as biological scientists, should be careful to distinguish between the good motives and the lack of knowledge or poor judgment of the people who would like to satisfy their urge to promote gentleness in the use of experimental animals. Their lack of knowledge about the real situation may excuse many of them for their failure to recognize the great damage that would be done by the type of regulation they propose. Especially, they fail to see that, aside from providing more money for the construction and operation of facilities for the care of experimental animals, there is really no way in which federal intervention would actually increase the comfort of animals employed for legitimate purposes in scientific investigation and teaching.

MAURICE B. VISSCHER
Department of Physiology, Medical School, University of Minnesota, Minneapolis

In your editorial of 1 July 1960 you gave your reasons for opposing a bill (S. 3570), which, if enacted by the Senate and House of Representatives, would control vivisection in the U.S.A. In support of your opposition you made some quotations from a book written by myself. I recognize that you did so in good faith; but, to prevent misunderstanding, I want it to be known by your readers that I have studied this bill and hope that it will be enacted, for it has my full approval. I am a licensed vivisector under the laws of my own country.

JOHN R. BAKER
Department of Zoology and Comparative Anatomy, University Museum, Oxford, England

Conversion Factors

With reference to the letter from H. R. Dursch and the other letters published [*Science* **132**, 848 (23 Sept. 1960)] in reply to my letter [*Science* **132**, 256 (22 July 1960)], I am grateful to the various correspondents who called attention to my outdated tables of conversion factors. The observant Dursch, by the way, noted the revision of the nautical mile on 1 July 1954 but overlooked the revision of the length of the yard on 1 July 1959, a revision which increases the ratio nautical mile/statute mile from 1.150777 to 1.150779. (Incidentally, while replacing *his* outdated conversion tables, Dursch might also oil up his desk calculator and discover that the ratio 6076.1033/5280 does not equal 1,1507575).

Perhaps the various comments on my letter serve very well to emphasize the point I endeavored to make. Congratulations especially to William Allen who, having noted the recent revisions

(*Continued on page 1898*)

Letters

(Continued from page 1858)

in the English system of units, elegantly and systematically developed the logical conclusion: the potential confusion inherent in the English system of units can be avoided by use of the metric system. (My sharp-eyed critics all noted, implicitly or explicitly, that the various definitions and revisions of the English units are always made in terms of the metric system.) As a postscript to Allen's letter, I wish to quote a relevant resolution from the recent 12th general assembly of the International Union of Geodesy and Geophysics (Helsinki, August 1960):

"The IUGG, considering international procedure concerning the use of metric units in scientific reports, strongly recommends that this practice be adopted in all papers submitted to IAGA. Thus heights of rockets and satellites should be given in kilometers instead of miles and altitudes of balloons and aircraft in meters or kilometers instead of feet."

As for Newell's ribbing on the subject of conversions, hidden in his first paragraph is some useful advice for those news media which are not concerned with accuracy and which want to "have what they say remembered." (I supposed that *Science* was concerned to have its articles be first correct and, if possible, remembered.) It is, of course, a psychological accident in the case in question that the number 9988, which cannot be justified on any technical grounds, appears acceptable, accurate and mnemonic, whereas the number 10,009, which is reasonably justifiable, appears to be either an error or a joke, and virtually demands rounding downward to 10,000. But once such a rounding has been effected, especially if it is then converted to 5 tons, the reader has lost all contact which the apparent degree of accuracy expressed in the original data. In fact, the question then arises, English or metric tons?

In general, I would recommend quoting at least the original data. If *Science* editors believe that a significant portion of *Science* readers do not comprehend the metric system, I would recommend, in this specific instance, a rendition such as: "4540 kg (approx. 10,000 lb)."

Now the witty Newell has also scored a more prevalent problem in conversions: the apparent increase in accuracy through use of conversion factors with *more* significant figures than the original data. But a word of caution to us would-be pedants: Newell happily increased four-place accuracy (4540 kg) to 13-place accuracy through use of a conversion factor with ten or more places (0.4535924277 . . . kg/lb), but unhappily he overlooked the revision (1 July 1959) of this factor. New value: 1 lb = 0.45359237 kg. One pound avoirdupois, that is.

PEMBROKE J. HART
IGY World Data Center A,
National Academy of Sciences–
National Research Council,
Washington, D.C.

On Ignoring Ancient Asia

Is there not some imprecision in the first two sentences of Hutchison's article [*Science* **132**, 643 (9 Sept. 1960)]? Hutchison says: "The main interest of the ancients in the absorption of sound was an indirect one. It concerned the fabrication of bells, which, until about the 8th century, were made of beaten iron sheets riveted together." By *ancients* he certainly does not intend to include the Chinese bell founders, who, long before the 8th century A.D., cast their bells.

That the background to the vast bulk of what constitutes our "science" today lay in Europe is traditional; is it wise to continue to ignore ancient Asia? Must we continue the error of the past in regarding Europe and Asia as two separated continents?

CHARLES O. HOUSTON, JR.
Division of Industrial Cooperation,
Smithsonian Institution,
Washington, D.C.