Letters

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cal diagnosis that is covered in the article "Reasoning foundations of medical diagnosis," by R. S. Ledley and L. B. Lusted [*Science* **130**, 9 (1959)]. In that article mathematical methods are used to separate basically quantitative values from the so-called "intangibles" or value decisions frequently required of the physician that involve moral, ethical, social, and economic considerations of great complexity. As pointed out in that article, the use of the computer might "enable the physician to define more clearly the intangibles involved and therefore enable him to concentrate full attention on the more difficult judgments."

However I am afraid the computer cannot be of aid in the "interpersonal relationship between the physician and the patient," as Hoffmann puts it, unless of course we stretch a point and say that any assistance a computer may give the physician in making a more precise diagnosis and a more scientific determination of the plan of treatment will tend to improve physician-patient relationships in general.

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Cardiotachometer

In a report by Rowley, Głagov, and Stoner published in *Science* [**130**, 976 (1959)], entitled "Measurement of human heart rate during usual activity," the authors stated, "Quantitative data on heart rate in beats per many minutes to many hours during various kinds of activity and work are not available."

It is apparent that the authors are unfamiliar with past developments in this field. In 1929, the late Ernst P. Boas developed the "cardiotachometer," which was designed to take continuous records of the heart rate for periods of hours or days. The many papers relating to this development were summarized in a text, *The Heart Rate* (Thomas, Springfield, Ill., and Baltimore, 1932). Since that time the device has been used extensively in many countries of the world and has been incorporated in many diagnostic and research tools.

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We should like to express our gratitude to Norman F. Boas for calling our attention to the outstanding work of the late Ernst P. Boas, who published a detailed description of his cardiotachometer in 1928 ["The cardiotachom-

eter, an instrument to count the totality of heart beats over long periods of time," *A.M.A. Arch. Internal Med.* **41**, 403 (1928)]. The instrument was about the size of a present-day electrocardiograph; precordial electrodes, held in place by straps encircling the chest, were connected to the cardiotachometer by long lead wires.

The miniature heartbeat counter described by us in *Science* is completely self-contained and will permit epidemiologic studies which were not possible with the cardiotachometer developed by Boas.

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Metric System

The American Geophysical Union's Special Committee for the Study of the Metric System in the United States noted your publication of our letter to the editor and its accompanying questionnaire [*Science* **129**, 532 (27 Feb. 1959)]. The committee appreciates your presenting this matter to your readers. It wishes, also, to thank the readers who aided the committee by a generous return of completed questionnaires. Many of the replies included letters containing helpful suggestions and offering financial assistance.

In the September 1959 *Transactions of the American Geophysical Union* your readers will find a full report of the committee, together with an analysis of the replies to the questionnaire received as of July. At this writing, three months later, 1080 have been analyzed. The fields of science and engineering were quite well covered by publication of the letter or questionnaire, or both, in eight leading journals and magazines in the United States. In reply to the most significant question, as to whether it would be desirable to replace the English system by the metric as the "only official system" of weights and measures in the United States, 90 percent replied in the affirmative. The average period of transition suggested was about 22 years; this indicates agreement with the committee on the necessity for a long transition period to avoid economic dislocation. Such a transition period would permit time for education in the schools, normal retirement of presently active older personnel, and normal obsolescence of existing equipment.

The Congress of the United States, for the first time in nearly 30 years, is faced with a decision in this matter. House bill HR7401, introduced last