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sufficient control of [pestilence and famine] so that they no longer effectively govern his increase in number." It is really absurd to think that man, with all his ability, cannot govern his breeding if he wishes, that "biological law" makes him multiply. He has for long ages been quite able to control his numbers, though without certain refinements now discovered. At a recent meeting in the Toronto General Hospital that was devoted to "new concepts in fertility and dysfertility," I asked how many children a couple might have. The physician who undertook to answer the question said that they might perhaps have a thousand children. This is vastly short of the 200,000 ova and about 200 million spermatozoa (per ejaculation) that Dorn states are seemingly available. But even this number will not be easily achieved; it should not be considered to pose a threat of overpopulation!

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References

1. N. E. Himes, *Medical History of Contraception* (Allen, London, 1936).
2. C. M. Turnbull, *The Forest People* (Simon and Schuster, New York, 1961).
3. E. Halley, *Phil. Trans. Roy. Soc. London* A17, 596, 654 (1693).
4. K. Davis, *Ann. Am. Acad. Polit. Soc. Sci.* 237, 1 (1945).

Studies on the Metric System Proposal

I read with interest the editorial "Weights and measures" in a recent issue of *Science* [136, 1085 (1962)]. As one who made a 2-year professional study of the subject some decades back, with a large staff of assistants, I appreciate the objectivity in the pros and cons you list. More could hardly be gotten into a short editorial, and I do not propose to pursue the pros and cons much further here. I should like to make some comments in the interest of perspective, however, on the preamble, rebuttal, and conclusion.

I feel sure it is just a slip (though it may leave a wrong impression) when you say "the question of *adopting* the metric system in the United States is again being debated" (italics mine). Nearly 100 years ago (in 1866) the metric system was legally adopted in this country. The question today is rather one of penalizing the use of our thoroughly standardized English sys-

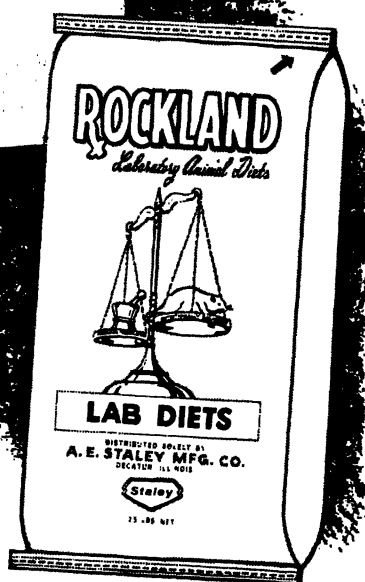
tem, thus destroying it, and substituting the metric system as the *sole* system for the United States.

In my study (in 1921) it was found that, after nearly 60 years of legal right, not more than one-tenth of 1 percent of the American people used the metric units. Of the rest, relatively few had even heard of this system, and yet the 99.9 percent would be the people to suffer and to be much more than inconvenienced by a compulsory change, whether it took 33 or 333 years. (The latter period is the more likely if the experience of France is to be used as a criterion.)

This is the other side of the "rebuttal"; and there is another question one should raise in view of the fact that the metric system is neither scientific nor convenient except for fine-instrument making and foreign trade: By what kind of effrontery does one-tenth of 1 percent of our population keep on insisting that it should benefit at the expense of 99.9 percent of the people? In *Forbes* magazine, beginning with the issue of 19 January 1924, five articles were published (three by proponents of the proposal that the metric system be made mandatory and two by me). The following statement, in the 12 April 1924 issue, closed the series: "It is just about as sensible to attempt to substitute the metric for the English system in the United States as it would be to attempt to substitute in this country the French for the English language."

As for the conclusion, I should like to point out that a *very* considerable and objective study of the "facts" has already been made on at least two occasions, including the fact that there is nothing *scientific* about the existing metric system. The first study was made in 1821 by John Quincy Adams. It was this thoroughgoing analysis which Congress had before it in adopting the English rather than the metric units for the United States at that time. The second study was made 100 years later, by me. It was sponsored and financed by the National Industrial Conference Board, was published by the Century Company, went into every conceivable aspect of the subject, and was guided by an able committee of five outstanding American scientists, engineers, and businessmen. Two favored the metric system, two favored the English system, and one (the chairman) was uncommitted. The report (261 pages) had the unanimous approval of this committee, which was composed of E. M. Herr, president of the Westinghouse

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Another study may of course be in order at this time. If it takes up where these two definitive analyses and the five *Forbes* articles left off, if some means is devised to make certain that it is unbiased and objective (not left entirely in the hands of the Bureau of Standards), and if, in addition, it goes into the lobbying and propaganda activities that lie behind the perennial agitation for making the metric system mandatory in the United States, a useful purpose may be served. But it surely should not cost the American taxpayers \$500,000.

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Note

1. Writing to Henry P. Fowler, president of the U.S. Chamber of Commerce, on 27 July 1921, Towne designated the 1921 report, which is entitled "The Metric versus the English System of Weights and Measures," as "the most comprehensive and complete presentation . . . since the notable report of John Quincy Adams in 1821 . . . a veritable mine of information for those who are interested in this subject."

Early Comments on the Moon Illusion

In their recent articles on the moon illusion [*Science* 136, 953, 1023 (1962)], Kaufman and Rock note the long history of concern with this phenomenon. It is of interest that an experimental proof for the view that the presence of intervening terrain creates a sense of greater distance leading to the greater apparent size of the horizon moon was offered by Malebranche in 1693 ["Réponse à M. Regis," *Oeuvres de Malebranche* (Librairie Philosophique J. Vrin, Paris, 1960), vol. 17, pp. 266–7]. In translation, the passage reads as follows.

"Take a flat piece of glass such as a broken glass pane. Heat it gradually and evenly while passing it over a candle flame at a distance of 3 or 4 fingers so that it won't break. When it becomes warm, lower it into the

flame and leave it there until it is covered with smoke, so that by looking through it you are able distinctly to see the flame without seeing other, less brilliant objects.

"With a glass thus blackened, one will see the sun and the moon to be of the same size at the horizon . . . provided the glass is close enough to the eyes to entirely exclude the sky and the land. . . . If the sun is at the horizon, the interposition of the glass will make it appear approximately two times nearer and four times smaller, as here precision is not necessary. But if it is risen high above the horizon, the glass will produce no considerable change either in its distance or in its apparent size. . . .

"This being so, it is clear that the interposition of the glass does not change the actual size of the retinal image made by the moon, as it loses nothing of its apparent size when we look at it above our head through this glass. But when it is at the horizon, its distance and its apparent size are notably diminished by the interposition of the glass; this does not at all change its image and only excludes other objects. Thus it is evident that the reason the moon appears large is that the perception of the surrounding land makes us judge it farther away."

Malebranche recognized that the illusion disappeared when one could not see the intervening terrain, and that it was the horizon sun or moon which decreased both in apparent size and in apparent distance. He emphasized that the terrain had to be entirely eclipsed, else the illusion would remain: "For, if one glimpsed the sky and the terrain even a little, this glass would not change the apparent size of the sun, because one would judge it to be more distant than the terrain which one saw dimly."

Kaufman and Rock suggest that if the illusion is defined in terms of size constancy, one must conclude that it is based on the smaller appearance of the zenith moon. While neither moon, horizon, nor zenith would be perceived as equal in size to a disk approximately 2162 miles in diameter at the earth's surface, the illusion can be eliminated most easily by procedures which reduce the apparent size of the horizon moon.

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