fessional education establishment based in the public education system and the teacher-training institutions."

Even a cursory examination of the backgrounds of the charter members reveals that: (i) About half are professors of education. (ii) Nearly all are in teacher-training institutions. (iii) Several are in public universities, and some have taught in or administered public elementary and secondary schools. (iv) Many are members of such public-education-oriented groups as the National Education Association and Phi Delta Kappa.

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Grassland Vegetation: Historical Note

I would like to call attention to a reference which seems to be pertinent to the recent report by Philip V. Wells on grassland climate [*Science* **148**, 246 (1965)]. This reference is to a passage on page 60 of a book by Henry Youle Hind entitled *Reports of Progress, Together with a Preliminary and General Report, on the Assinniboine and Saskatchewan Exploring Expedition* (Her Majesty's Stationery Office, London, 1860). The passage is too long to quote in full, but its kernel is in this sentence:

> The extension of the prairies is evidently due to fires, and the fires are caused by Indians, chiefly for the purpose of telegraphic communication, or to divert the buffalo from the course they may be taking.

The author describes such fires which he saw himself, discusses their effect on soil moisture, and says that areas which escaped fire for a few years tended to regrow with willows and aspens.

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Reprints Again

From the letters inveighing against the burgeoning of reprint requests (12 Feb., p. 677), it is clear that traffic in reprints is growing and is straining publication costs and secretarial time and expenses; but it appears to me that the solution to this problem cannot be approached in a spirit of exasperation.

I am one who requests many reprints, selecting titles from *Current Contents*. My interests are broad and cannot be served by regular or even extended visits to a library, even though this was my habit for many years. . . . I collect, read, and file many reprints, spending about six hours a week at this activity. By this method I have a literature at my finger tips from which I prepare lectures, reviews, classes, and so on. In my estimation this system, although requiring a serious effort and the ability to read rapidly, is the only method by which one may keep up with the literature in several active fields.

The point is that I have bypassed libraries and depend exclusively on reprints, and that such a method works. I no longer need journals and would do just as well if I could order reprints from a central library which received and announced all edited manuscripts. I do think that a vigorous editorial effort must be continued to maintain standards of publication, but I suggest that science might be able to get along without journals and a widespread library system in its present expensive and expanding form. On the other hand, I do not know how I would keep well informed without having the opportunity to receive many reprints.

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Simian Temperament

Bernstein and Guilloud (Letters, 19 Feb., p. 825) are correct in pointing out that the adult stump-tailed macaque, *Macaca speciosa*, cannot always be handled with impunity. However, a number of other points are made in their letter which demand clarification. Our original observations [*Science* **139**, 45 (1963)] of the laboratory-housed macaques pertained to the remarkable docility toward man of prepubertal members of *M. speciosa* as compared to the popular *M. mulatta*. We have now extended our observations to the adult and can recommend them for laboratory use *provided they are handled regularly*. Figure 1 illustrates how we have transported adult *M. speciosa* in the past. This treatment does not render the adult *M. mulatta* more tractable.

Fig. 1. *Macaca speciosa.*

It is also true, as Bernstein and Guilloud pointed out, that adult *M. speciosa* often attack each other when caged together. This fighting is no more severe, however, than that seen between members of *M. mulatta* and does not disqualify *M. speciosa* as a promising replacement for *M. mulatta*. Furthermore, the behavior of mother toward young is quite permissive, and this is a subject for investigation in our laboratories. Those who have contended with the problem of separating the infant *M. mulatta* from the mother will find the same task remarkably easy to perform when using members of *M. speciosa*.

Bernstein and Guilloud are justified in recommending other monkeys for laboratory use on the basis of docility. It is true that a number of monkeys can be cited for docility, as any organ grinder or monkey fancier will attest. Our intention, however, was not to survey the order for docility but rather to recommend that the macaque *M. mulatta* be replaced by the macaque *M. speciosa* whenever handling becomes an important variable.

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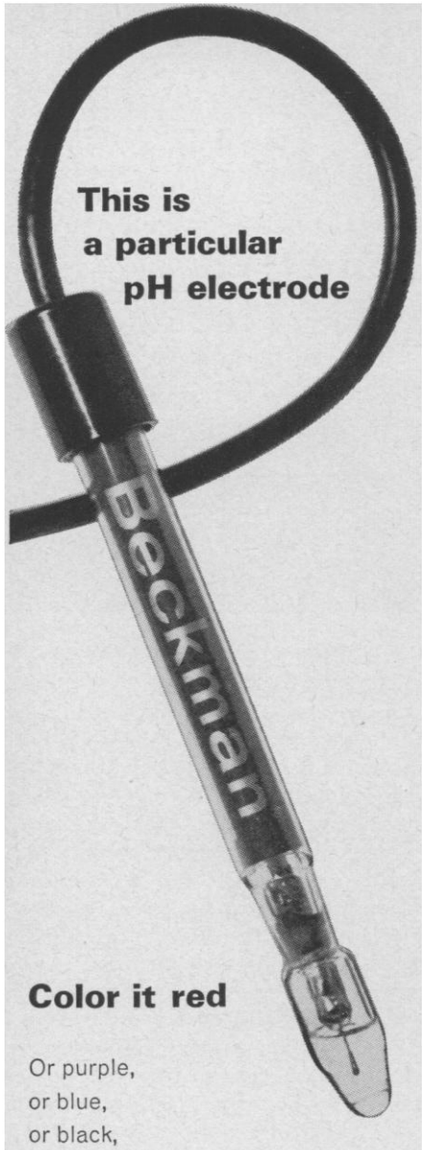
Kling and Orbach (*1*) recommend the stumptail macaque (*Macaca speciosa*) as a "promising laboratory primate" because its behavior is "remarkably docile and manageable," in contrast to the characteristic belligerence of the



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rhesus (*M. mulatta*) in the laboratory. Other laboratory lore and a half dozen recent field studies of various primate species (*2*) suggest that each of them possesses fixed traits of temperament, especially of irritability and aggression. Bernstein and Guilloud's recent letter (*3*), however, indicates that not all stumptails are as gentle as those encountered by Kling and Orbach, and they warn that some may be troublesome in the laboratory. Apart from the use of these characteristics as criteria for the choice of animals, these apparently species-fixed variations of simian temperament should be studied in their own right. While this has been done to some extent, little use has been made of the powerful method of cross-fostering, which would help to determine whether (to oversimplify) the surliness of the rhesus and the tolerant friendliness of the stumptail (or free-living gorilla) are genetically built-in or are determined by the experience of being reared by a surly or a friendly monkey mother, in a particular animal "culture." Kuo (*4*), who has, in effect, made the lion and the lamb to lie down together, is one of a number of investigators who have modified presumed species-specific traits by manipulating early experience. Others (*5*) have ingeniously extended the use of cross-fostering to cross-species fostering—abolishing the combativeness of mice by rearing them with rats. It would be most desirable, in the interests of clarifying our understanding of the effects of early experience and of providing some crucial controls in the field of behavior genetics, to go up the phyletic scale to the stumptail, the rhesus, the pigtail, and other monkeys.

Such studies would be feasible only in major primate research facilities; private correspondence has revealed difficulties in allocating such facilities for the purpose; hence this appeal to investigators who can do so to establish breeding colonies of several different species under conditions permitting cross-fostering along with other manipulations of genetic strains and of aspects of early experience (size of "family," competition among adults, parents' mothering experience, artificial mothering, presence of monkey sibs, and so on) which Harlow and others have taught us to look for.

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2. For example, G. B. Schaller, *The Mountain Gorilla: Ecology and Behavior* (Univ. of Chicago Press, Chicago, 1963).
3. I. S. Bernstein and N. B. Guilloud, *Science* **147**, 824 (1965).
4. Z. Y. Kuo, *J. Genet. Psychol.* **97**, 211 (1960).
5. V. H. Denenberg, G. A. Hudgens, M. X. Zarrow, *Science* **143**, 380 (1964).

Referees: Credits and Demerits

Page (Letters, 12 Mar., p. 1241) is right! Referees should be compensated. The compensation should be in the form of public acknowledgment, in a footnote to each published paper, of the referee who assisted in preparing the paper for publication. This system works well in the reviewing of book manuscripts. It would have many advantages for the publication of scientific papers also.

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It is most unfortunate that the reviewers who are selected by editors of many scientific journals—*Science* being an exception, in my experience—make no distinction between dissemination of current scientific information and the publication of items of historical scientific interest. Current material becomes historical as manuscripts accumulate dust on the reviewers' desks.

I propose to editors the following equation for evaluating referees:

$$T_t = 14d + 1.4d\,(P_t - 5),$$

where T_t is the total time (in days) that an editor should tolerate stalling, d is a period of 24 hours, and P_t is the total number of typed, double-spaced pages (excluding references). (For referees who are not adept at algebra, the evaluation of T_t for a 20-page manuscript is 5 weeks; for 5 pages or less, 2 weeks.)

Scientists should retaliate against editors and their lethargic reviewers. When submitting manuscripts they should require that the editor adhere to this formula or return the manuscript immediately. Otherwise, ethical practice should permit the scientist to submit his manuscript to several journals simultaneously and then withdraw it from editorial consideration by others after one journal has accepted it.

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