able argument about the accuracy of his estimate, based upon various assumptions about the kind of stade he used, and that no one seems to have attacked the question directly by measuring the average speed of a camel.

Tobler has called my attention to the work of James Rennell [*Phil. Trans. Roy. Soc. London* **81**, pt. 2, p. 129 (1791)]. Rennell studied the speed of a camel by analyzing the records of a number of desert travellers, and actually proposed that the camel be used as the distance-measuring device in the initial surveying of Africa. Comparison of his results with the work of Eratosthenes reveals an interesting circumstance.

Briefly, Rennell found that the hourly distance travelled by a camel is almost independent of the loading and is remarkably constant. He found a rate of about 2.5 statute miles per hour, with deviations of about 2 percent. The daily distance does depend upon the loading; apparently the more heavily loaded camels simply stop sooner and refuse to continue. For the "heavy caravan," after allowing for stops and the sinuosity of the path followed, he found an average day's journey of 16.6 miles per day, and about 10 percent more for the "light caravan."

Eratosthenes gave 50 days' journey as the distance from Aswan to Alexandria. From an atlas, I judge this distance to be about 520 statute miles, giving 10.4 miles as the "camel-day" in Eratosthenes's time. Thus camels in 1791 travelled 60 to 75 percent faster than camels in 250 B.C., according to the assumptions made about the loading of Eratosthenes's camels. The most likely explanation of this large discrepancy is improvement in the breed.

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Genetic Code: Exaggerated Claims

In your editorial of 22 May you quote the statement by Glenn T. Seaborg of the AEC that "inevitably our recently acquired knowledge of the genetic code will be applied also to the improvement of the human species." As a graduate student of biochemistry and molecular biology I find the appearance of such a statement in the pages of *Science* profoundly unsettling.

Without a doubt recent advances in molecular biology have opened provocative new vistas both for the acquisition of knowledge and for its application; indeed I believe the coming decades will find this to be the most exciting field of science. Nevertheless, this very fact should make the scientific community aware of the need to guard against sensationalism. We are far from a full elucidation of the genetic code. Many of its most basic features are understood only poorly and some not at all (for example, the sequence of bases within a codon, intercistronic punctuation, and the various kinds of suppressor mutation). The 22 May issue of *Science* gives some idea of the situation in the dispute between Woese and Hinegardner and Engelberg ("Universality in the genetic code," p. 1030).

But leaving this aside, there is the much more fundamental question of the aims of scientific endeavor and the responsibility of scientists to make these aims clear to the public (which foots the bill) and especially to avoid suggesting melodramatic results which are not attainable with presently foreseeable means. Specifically, I know of no way whereby human heredity will "inevitably" be altered because of present studies on the genetic code. It would be fascinating to hear a concrete suggestion. Until the time when such suggestions become current and scientifically responsible, however, I think that a reputable and influential journal such as *Science* should refrain from spreading generalizations which *inevitably* will lead to disillusionment and mistrust of science, or an irrational fear of Frankensteins.

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We sympathize with the University of Skopje, Yugoslavia (Letters, 19 June, p. 1409), in the loss of their modern laboratories. However, they are far more fortunate than we are, for we have never had a modern laboratory. The Department of Pharmacology at Meharry is housed in converted army barracks; the renovations were carried out by the faculty and staff aided by minute grants from two pharmaceutical houses (the only responses to numerous letters sent out by members of the faculty). The building has no permanent heating system; the furniture

and work-benches, for the most part, have been obtained from salvage houses. Despite these obvious handicaps, an active research program has been established in pharmacology, and several publications from this department appear each year in major scientific journals. We have learned to make the best of limited funds and equipment and have become past masters in the art of "do-it-yourself."

We now feel that Meharry should take a larger part in training and research and are endeavoring to initiate a limited graduate training program in the department of pharmacology. We also need a new building, and, since we have no UNESCO or other organization to plead our cause or send us gift coupons, we needs must raise our own funds. To this end, we have written some 80 letters to foundations and pharmaceutical houses throughout the country, outlining our plans and our hopes and asking for contributions. To date, we have received 40 replies, only two of which offered any assistance (a check for $500 and the promise of $5000 worth of materials, both from chemical companies). It is interesting how unvarying was the tone of the refusals: compliments on our program, regrets that funds were allocated for many years to come, and best wishes for our success in raising funds from other sources.

We have no doubt that the University of Skopje will have better fortune.

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Potto Born in Captivity

The birth of a male *Perodicticus potto* at the Oregon Regional Primate Laboratory on 2 January 1964 afforded researchers the opportunity of recording the first observations on the rate of growth and development of this animal. Once a week since birth the infant has been photographed, weighed, and measured.

Although the animal was conceived in the laboratory, the exact period of gestation is unknown. No information on this subject could be found in the literature.

Since pottos are nocturnal animals, consistent observations of mother-infant behavior, learning, and exploratory behavior were not feasible. The infant clung to its mother from birth and was nourished by the mother. Though alarmed when separated from her infant, the mother readily accepted it back. When removed from its mother, the infant, even shortly after birth, made clicking, guttural sounds; it also uttered feeble squeals. These were practically the only utterances heard. Pottos are silent animals, and the only sounds audible from the adults are soft growls produced when the animals are frightened or angered. The young animal began to produce such growls and to bite fiercely when it was handled at 130 days of age.

The hands and feet of the young had the adult positioning from birth; the pollex and hallux spread 180 degrees from the three functional digits (III, IV, V). The index finger was reduced (as shown in early x-ray films), and at birth the second toe was clawed as in the adults. The locomotor pattern was well developed at birth and had attained the full adult pattern after 2 months.

The newborn was covered with a sparse coat of white juvenile underhairs and longer, widely separated guard hairs. A strip of light brown hair extended down the middle of the back. The relatively long tail was sparsely covered with hair. The animal had prominent yellow ears and brown markings in the nasal and infraorbital areas. All other parts of the body were pink. After 25 days, new, darker hairs began to replace the white ones, particularly on the head. At 46 days the coat had attained the color and quality of the adult pelage on the head and over the shoulders. At 109 days most of the juvenile pelage had been replaced by the brown coat of the adult. However, white baby hairs still persisted on the forearms, the triceps region, and down the back onto the legs. At this date (130 days of age) this color pattern had not changed.

One of the peculiarities of pottos is an elongation of the spines of the last few cervical vertebrae so that they protrude above the surface and are covered only with a tight sleeve of glabrous skin. The cervical spines, not palpable at birth, became prominent at 30 days.

Growth in weight and length progresses at a steady and remarkable rate in a linear pattern. The animal attained a tenfold increase in weight in 109 days.

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