Study of the problem leads me to suggest the following:

1. The entire problem should be more carefully studied by a government agency or foundation before serious shortages occur.
2. A diplomatic approach should be made to the Government of India through the United States Consulate in Calcutta, requesting their cooperation.
3. Trappers and shippers in India as well as importers in the United States should be licensed and compelled to meet certain stated requirements.
4. All Rhesus specimens leaving India should be tested for tuberculosis and the positive reactors eliminated.
5. A study should be made of the need for these primates and this demand should be coordinated throughout the year with trapping operations in India.
6. Agreements should be made with shipping lines which will handle this traffic so that they will provide shipping facilities and adjust their charges accordingly.
7. Shipments of monkeys should be accompanied by trained caretakers.
8. Shipments should be timed and routed taking into consideration the weather conditions prevailing at various times of the year and the effect on Rhesus shipments. The Red Sea should be avoided at certain seasons (after the Mediterranean is again open) and during severe winter weather, shipments could be sent to the West Coast or to Southern ports, *e.g.*, New Orleans, instead of Boston and New York.
9. An adequate balanced ration and not solely unhulled rice should be required for animals during shipment.
10. Rhesus monkeys could be purchased directly from reliable agents in India at a considerable saving to scientific laboratories.
11. Breeding colonies for a limited number of disease-free, selected, dated and conditioned specimens should be established in the United States or nearby in the Western Hemisphere.
12. Consideration should be given to the possibility of using the New World platyrrhine monkeys in experiments where they can be substituted for the Rhesus monkeys.

Assuming that a supply of Rhesus monkeys or of other *Macaca* is essential for American laboratories, some of these recommended steps would seem highly desirable if not imperative.

C. R. CARPENTER

SCHOOL OF TROPICAL MEDICINE,
COLUMBIA UNIVERSITY

MUSCA DOMESTICA AND HIPPELATES FLIES—VECTORS OF BOVINE MASTITIS

RECENT work at the Florida Agricultural Experiment Station on transmission of bovine mastitis shows that at least two species of insects, namely, the common housefly, *Musca domestica,* and frit flies or eye gnats, *Hippelates* spp. to be important vectors of the infection. Close observations made on diseased animals in affected herds showed that *M. domestica* were persistent in their feeding habits at the teat orifice of lactating cows in the milking line and of cows corralled near the barns. They fed on waste milk accidentally spilled on floors during milking operations. *Hippelates* were noted to hover around the natural body openings of calves, yearlings, pregnant heifers and lactating cows. *Hippelates* fed on lacrimal fluid, fatty body secretions, milk droplets accidentally spilled on the feet and on secretion at the tip of the teat of animals in herds where mastitis has prevailed. Structural characters, breeding habits and feeding activities of *M. domestica* and *Hippelates* flies aroused suspicion that these insects could serve as ideal vectors of mastitis.

Exposure tests were made to ascertain the possible relation these species might have to udder infection by their feeding habits at the teat orifice. The insects were taken from herds where mastitis has prevailed. In some instances alternate feedings on infected material and the teat orifice were made, while in other instances the teat orifice was exposed to insects taken directly from premises where mastitis prevailed. Mastitis developed in each of the experimental animals by the exposure technique employed. The type of udder infection, whether temporary or permanent, depended upon several factors. Active infections developed where the udder secretion was allowed to remain in the quarter as occurs naturally during the drying-off period prior to calving. Under natural conditions *M. domestica* and *Hippelates* fed simultaneously at the teat orifice of animals in corrals and many exposures were effected throughout the day during the insect season. While this work points out importance of insect transmission of bovine mastitis and opens up new fields of investigation it does not convey the idea that mastitis may not be transmitted by other means. Since *Hippelates* have previously been incriminated in the transmission of conjunctivitis and yaws (*frambоesia tropica*) in humans it would not seem unreasonable to suspect these insects serve as vectors of other infections such as Brucellosis in cattle *via* the conjunctivae, mouth, teat orifice, vagina and skin. Buchli has shown these routes to be the portals of entry of *Brucella abortus* in cattle.

D. A. SANDERS

FLORIDA AGRICULTURAL EXPERIMENT STATION

EVIDENCES OF PLEISTOCENE CURRENTS IN PENINSULAR FLORIDA

THE Aero Service Corporation in Philadelphia have recently completed, on a scale of 1:40,000, an aerial survey of the southern third of the peninsula of Florida. The photographs had been assembled on a rough mosaic basis on great boards, and matched with a remarkable degree of accuracy. Southeast of Lake Okeechobee the small lagoons were arranged along