toxicity of chloroquine for erythrocytic malarial para-The apparently unique concentration mechanism of parasitized erythrocytes for chloroquine1 as well as the early selective morphological alterations of the digestive vesicles are readily explained by such a process. We have found that chloroquine does not dissolve or bind to malaria pigment in vitro, which suggests that chloroquine would be concentrated only by parasites actively forming malaria pigment. This would account for the inactivity of chloroquine, mepacrine and quinine on mature gameto-Our hypothesis also clarifies the consistent relation which has been observed between the degree of chloroquine resistance (and the accompanying resistance to mepacrine and quinine) of various, independently selected, chloroquine-resistant strains of P. berghei and the reduced formation of malaria pigment by such strains13-15, as well as the reduced ability of such parasites to concentrate chloroquine (Phifer, K. O., personal communication, and ref. 1).

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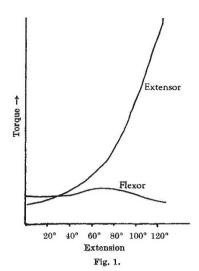
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Mechanism of Locust Jumping

By means of high-speed flash cinematography it has been shown that the acceleration period of the jumping locust the time taken to extend the metathoracic legs at their tibio-femoral joints-is about 20 msec. Measurements of the forces exerted by the feet during the jump confirm this time and show that the maximum force from the muscles is reached in from 3-8 msec after the start. Also the measurements show that in a maximum jump full extensor tension is available at this time.

It can easily be shown that the rate of rise in tension in the extensor muscles is not fast, the peak being reached in about 20-30 msec (ref. 1).

Investigation of the mechanical system shows that the lever arm of the extensor apodeme at the joint varies greatly with joint angle, while that of the flexor remains constant. If torque is plotted at maximum tension against angle for both muscles as shown in Fig. 1, it is clear that when the leg is fully flexed the small flexor muscle can exert more torque than the extensor and can hold the leg flexed against extensor torque. Physiological investiga-



tions have shown that the kick is always preceded by activity in both muscles. It is apparent, therefore, that the jump is initiated by release of the flexor muscles, the energy being stored in elastic components of the extensor system. This can be confirmed in two ways: by cutting the flexor apodeme or by attaching a small piece of wax to the tibia so that full flexion is impossible. In both cases no jump can take place.

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Complementary Specialization of Male and Female Reproductive Structures in the Bear Macaque, Macaca arctoides

In 1872 Anderson¹ first noted the strikingly aberrant structure of the glans penis of the red-faced stump-tailed bear macaque, Macaca arctoides I. Geoffroy, 1831 (= M. speciosa Blyth, 1875; for nomenclatural discussion of this species see ref. 2). Further characterizations of the unusual penis of this monkey have been provided by other authors3-7. The glans of the bear macaque differs from that of other macaques in being long, slender and lanceolate instead of short, blunt and rounded (Fig. 1). In the bear macaque the glans is 5-7 cm long, dorso-ventrally flattened, and tapers in breadth from about 1 cm at the base to less than 0.5 cm at the tip. In other macaques the glans is less than 2.5 cm long and is generally helmet-shaped, approximately as in man. The penis bone, shaped4, approximately as in man. which provides skeletal support for the glans in macaques and most primates, is also about 6 cm long in the bear macaque (Fig. 2), more than twice as long as in other species of the genus4,8.

The anatomy of the distal part of the female genital canal of M. arctoides, which has not been previously investigated, also proves to be widely divergent from that of other macaques. The following account of female structures in this species is based on examination and dissection of two adult specimens (FMNH Nos. 99367, 99368) and one juvenile (with permanent first molars and deciduous incisors; FMNH No. 99377) given by Dr A. Kling, Michael Reese Hospital, Chicago. (These observations were subsequently confirmed by examination of external genitalia of three additional adult female specimens.)

The external opening of the vagina in both adult specimens of M. arctoides is peculiarly obstructed by a large mid-dorsal ellipsoid mass which protrudes ventrally