spider monkeys (*Ateles geoffroyi*) at the Yerkes Laboratories. The average is 5.48 kg with a range from 4.27 kg to 6.89 kg. The average weight of the males is 6.24 kg; of the females 5.34 kg. These animals have been in captivity from 7 to 9 years and are sexually mature. They have had an adequate opportunity for exercise and do not have an excess of fat. The average of 5.48 kg is certainly more typical of the adult Ateles than the averages of 2.0 and 2.2 computed by Zuckerman and von Bonin from Hrdlička's data. It is apparent that this author was correct in stating that 4 of the animals he weighed were emaciated, but it is doubtful if any of them were adult.

The average of 10 brains of *Ateles geoffroyi,* fixed in formalin, is 91.6 with a range from 75.5 to 107 grams. Body weights and sex of these animals are not known, but most of them were used for acute experiments and were selected because of their small size. The brain weights, however, closely approach those given by Hrdlička, which average 95.6 grams, and the difference may well be due to the fixation. Computation of brain-body weight ratio from our figures gives a value of 16.7 instead of 44.9 reported by Zuckerman and a coefficient of cephalization of 0.33 instead of 0.62 computed by von Bonin.

Although we have not material at hand for measurement, we believe, from experience with adult animals, that the published figures for Cebus and some other members of the order may be as greatly in error as those for Ateles have proved to be. Certainly no attempt to correlate brain-body weight ratios with intelligence in the primates can be justified until more accurate anatomic data are available.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

ANTI-RETICULAR IMMUNE SERUM: ITS ACTION DEMONSTRATED BY TISSUE CULTURE TECHNIQUE[1]

A GROUP of Soviet investigators under the leadership of A. A. Bogomolets have recently emphasized the importance of anti-reticular cytotoxic serum (ACS) as a means of pathogenetic therapy.[2] It has been reported that such serum possesses stimulating effect on the reticulo-endothelial system (RES) when used in minute doses. When the same serum is employed at large doses the effect is "cytotoxic" for the RES.

To our knowledge no demonstration has been made as to the direct action of ACS on living cells *in vitro.* The following is a preliminary report on a phase of a group project dealing with this subject.

Since tissue culture technique affords a direct method of observing cellular responses this method is being utilized. The serum (ACS) was prepared by using spleen and rib marrow of guinea pigs as antigen for immunization of rabbits. Gradually increasing amounts of the tissues were given four times intravenously and orally at 4 to 5 day intervals. One hundred tissue cultures in hanging-drop were used for the first series of experiments. The medium consisted of fresh embryonic extract from chick embryos incubated seven days, combined with normal rabbit serum, the final dilution being 1:10 for control experiments. For test purposes the rabbit ACS was substituted. The clot was formed by combining these components with fresh heparinized rooster plasma. Four sets of tissues were cultivated: (1) adult guinea pig spleen in medium containing normal control rabbit serum; (2) adult guinea pig spleen in medium containing ACS; (3) spleen from 14-day chick in medium containing normal rabbit serum; (4) spleen from 14-day chick in medium containing ACS. After 48 hours cultivation at 37° C no difference in the abundant outgrowth was seen between controls and the ACS treated cultures of embryonic chick spleen.

In striking contrast adult guinea pig spleen cultures showed practically no outgrowth of cells in medium containing ACS, whereas such tissues in control cultures uniformly showed abundant migration of cellular elements.

These results indicate (1) the reality of the strong inhibitory action of ACS when a homologous cell system is used, (2) that this action is specific for guinea pig as compared with chick spleen cultivated under identical conditions. These observations demonstrate only the inhibitory phase of the potentialities of ACS, while its stimulating property on the RES will be determined by serial dilutions of this serum. We believe it will be possible to define by the behavior of cells *in vitro* the action of ACS from total inhibition to marked stimulation; the two extremes of ACS action which are apparently of practical significance.

Studies in progress will also establish cytological changes as well as serological and immunological phenomena involved.

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[2] A. A. Bogomolets, *Amer. Rev. Soviet Medicine,* I, 101–112, 1943; P. D. Marchuk, *ibid.,* p. 113–123; B. E. Linberg, *ibid.,* p. 124–129.