

brain of the Gorilla, Chimpanzee and Orang has been carefully studied in place, and where measurements of the brain have been controlled by measurements of the cranial capacity and relations—in short, wherever the best and only reliable methods have been employed, the cerebellum has been found covered by the cerebrum. My own observations are the following: 1st. The dissection of an infant Chimpanzee (two years) and the study of the relations in the fresh state in presence of several professors of anatomy at the New York Medical Schools, as well as of neurologists. I need instance but two eye-witnesses, Professors Wm. H. Darling and Wm. A. Hammond. 2d. The dissection of a large Chimpanzee (probably nine years old) and the verifying of the complete concealment of the cerebellum in the fresh specimen, in presence of Professor Herman Dörner, Ph. D., and several of my class in comparative anatomy. The hardened brain shows the same relation as it did in the fresh state. 3d. The cast of the skull of a Chimpanzee which I purchased many years ago. 4th. The examination of another out of which the brain had been removed by a coroner (!) at Coney Island.

As regards my Orang Outang I would say that in the median line the cerebellum was markedly overlapped, but that towards the sides its margin coincided with that of the cerebral edge. This is due to the altogether different shape of the Orang's cerebellum as contrasted with that of the Chimpanzee. Its lateral lobes flare out and do not taper like the human and troglodyte cerebellum.

In conclusion, I would say that I have observed a fifth ventricle (*ventriculus septi pellucidi*) in the Orang and Chimpanzee. I should be much interested to know whether Dr. Chapman has examined into this point and whether he confirms my observation or not. Judging from the photograph of the medial surface of a Gorilla's hemisphere in Pausch's monograph, I believe this species to correspond to other anthropoid apes in this regard.

The olivary nucleus is far richer in crenulations and mass in the Orang than in the Chimpanzee.

E. C. SPITZKA, M.D.

130 East 50th Street, Dec. 22, 1880.

To the Editor of SCIENCE:

For some years past I have been a strong believer in the anatomical uses of the cat as a standard of comparison for other vertebrates. I am persuaded, as the result of experience and observation, that the cat is a valuable and convenient subject of preliminary dissection by the human anatomist. I have often desired a description of the muscles in a cheaper and more convenient form than the ponderous quarto of Straus-Durckheim.

The forthcoming "Laboratory Manual," by Professors Wilder and Gage, of Cornell University, will contain detailed descriptions of the muscles of the neck and the arm, with explicit directions for the exposure and the dissection of each in its natural order. A most desirable feature of the manual is the Synonymy and General Description of the muscles.

This manual has been prepared by practical instructors and is not a mere compilation. At the request of Dr. Wilder, I have recently made some dissections for the sake of verifying the accuracy of these descriptions, as given in the advanced sheets printed for the students in his laboratory, and I am informed that duplicate sets of these sheets may be obtained, at a nominal price, by others who will engage to return the extra copy with criticisms and suggestions which may aid the authors in making the work more accurate and complete.

T. B. STOWELL.

STATE NORMAL SCHOOL, CORTLAND, N. Y.,
December 22, 1880.

ASTRONOMY.

THE TEMPEL-SWIFT COMET.

Professor Frisby, of the Naval Observatory, has computed from the Washington observations of October 25, November 7, and November 20, an orbit of the comet discovered by Mr. Swift on October 10, without assuming a value of the eccentricity or of the period, and finds an elliptic orbit with a periodic time of a little less than six years. The observations used in this calculation are too near together to give a good determination of the periodic time, but the probability is that this comet has made two revolutions around the sun since its discovery by Mr. Tempel in 1869, and that its true period is nearly $5\frac{1}{2}$ years. The perihelion distance found by Professor Frisby is 1069; and the aphelion distance is 5472. Thus one of these distances corresponds very nearly to the earth's distance from the sun, and the other to that of Jupiter.

This comet was observed at Washington on December 22 and 24, and data are at hand, therefore, for a more exact determination of the orbit. Since December 24 the sky has been cloudy.

A. HALL.

WASHINGTON, December 29, 1880.

COMET DISCOVERED.

The Smithsonian Institution has received from the Astronomer Royal, of England, the announcement of the discovery by Cooper on December 21, at nine o'clock P. M., Greenwich mean time, of a bright comet in 1 hour 5 minutes right ascension and 6 degrees north declination, which, at seven o'clock, December 25, was in 1 hour 29 minutes right ascension and 2 degrees north declination.

WASHINGTON, Dec. 28, 1880.

ALVAN CLARK & SONS, of Cambridgeport, have now on hand, in all the various stages of completion, a most interesting collection of large refractors, to say nothing of a number of glasses of 8 inches or less diameter.

The lenses of the 23-inch equatorial for Prof. Young, at Princeton, are receiving the finishing touches, and have already shown a remarkable degree of perfection. The glass was cast by Feil. The mounting for this instrument is well advanced.

A 16-inch objective for Prof. Swift, of the Warner Observatory, is finished, and the mounting nearly so. This glass is of English manufacture.

The McCormick glass of 26 inches aperture, made at the same time as the Washington Refractor, and intended for the University of Virginia, is still in the shop and has been completed for several years, while the mounting requires but comparatively little additional work.

Two 8-inch refractors have been ordered and are partially finished,—one ordered by Prof. Young for the seminary at South Hadley, and the other by Dr. Engelmann, of Leipzig.

The flint glass disc for the 30-inch telescope, ordered by Struve for the Russian Government, has been received from Feil, and the crown glass is expected shortly. The mounting for this will probably be made abroad.

For the Lick Trustees a 36-inch refractor is ordered, but will not be completed for several years.

A 12-inch equatorial for observing the transit of Venus is nearly finished, and orders have been received for a 5-inch photoheliograph and a smaller comet-seeker.

In all or nearly all of these instruments the cell of the object glass is arranged so as to separate the lenses by several inches and allow a free circulation of air between them, as well as to afford an opportunity of readily reaching the inner surfaces of the glass. In the larger objectives especially, such a device is required in order to bring the temperature of the glass as nearly as possible equal to that of the external air.

W. C. W.