negatives, which the writer has had the good fortune to see, are very fine, indeed, and show an amazing amount of detail in case of both consonant and vowel sounds. The photographs were taken by using acetylene burning in oxygen, an image of the flame being thrown upon a moving sensitive film.

ETHERION.

Nature, in acknowledging the receipt of a paper by Mr. Charles F. Brusch (*sic*) on the new gas *Etherion*, promises to "refer to the paper later when we receive a spectroscopic demonstration of the existence of the new gas." It seems to the writer that Mr. Brush has demonstrated the existence of a gas—or something thin like air—which has a thermal conductivity one hundred times as great as that of hydrogen. If such is the case, the gas is certainly a new gas, and perhaps the spectroscope cannot be expected even to *verify* its existence; for Mr. Brush's speculation as to its molecular weight (1/10,000) is to a certain extent legitimate, and perhaps a gas of this molecular weight might not have any spectrum at all. One does, however, feel like demanding the demonstration of the existence of this substance by some of the methods heretofore employed in this field of discovery, but the fact remains that its thermal conductivity is sufficient to establish its existence. The only question in the matter is the accuracy of Mr. Brush's experimental results, and everyone who heard his paper at Boston was convinced of the adequacy of the experimentation. It may interest the readers of SCIENCE to learn that Professor E. W. Morley has joined Mr. Brush in continuing the investigation of the new gas.

THE GRAVITATION CONSTANT.

RICHARZ and Krigar-Menzel* have finished their elaborate and painstaking determination of the gravitation constant by means of the balance. A preliminary determination of the decrease of gravity with height, begun in '89, was reported to the Berlin Academy in '93.

The resulting value of the gravitation constant is

$$(6.685 \pm 0.011) \cdot 10^{-8} \frac{cm^2}{g \cdot sec^2},$$

and of the density of the earth

$$(5.505 \pm 0.009) \frac{g}{cm^3}.$$

This result lies between the results of Poynting and of Boys, and is, no doubt, the best result hitherto obtained; although the estimated probable error of Boys' result is only ± 0.002.

W. S. F.

* *Wied. Ann.*, Vol. 66, p. 177.

ZOOLOGICAL NOTES.

THE BRAIN OF THE CHIMPANZEE.

THE last number of the *Journal* of the Boston Society of Medical Sciences contains an article by E. W. Taylor on the Minute Anatomy of the Oblongata and Pons of the Chimpanzee. The author calls attention to the fact that, while the gross anatomy of the anthropoid apes has received much attention, comparatively little has been done in the way of minute study, and says that particular study should be given the cortex, in which the final secret of the differentiation of brain types must lie. The methods of preparation of the sections are given, and then follows a detailed description and comparison with similar sections of the oblongata and pons of man.

The points of special interest in the oblongata are the great development of the motor tracts; the peculiar conformation of the gray matter; the irregular character of the sensory crossing, and the smallness of the fillet; the fewness of the external ventral arcuate fibers, and the absence of the nucleus arciformis; the large size of the descending root of the fifth nerve and the imperfect development of the restiform body.

The noteworthy features of the pons are the preservation of the identity of the pyramidal tracts; the fewnesss of the essential fibers of the pons; the greater relative development of the dorsal portions and the insignificance of the posterior longitudinal fasciculus.

Mr. Taylor concludes that "There can be no question from our study, as well as from that which has gone before, that the similarity between the brain of the anthropoid apes and of man is one of the most striking and interesting facts of which we have knowledge."

FRESH-WATER PEARLS OF THE UNITED STATES.

MR. GEORGE F. KUNZ'S paper on the Fresh-water Pearls and Pearl Fisheries of the United States, recently issued by the United States Fish Commission, is of very general interest. The early history of Unio pearls in North America is given, and the extent to which they were used as ornaments by the aborigines will be a surprise to many. Enormous numbers have been found in the mounds of Ohio, one opened by Mr. Moorehead containing 'a gallon of pearls,' and another excavated by Professor Putnam nearly two bushels. It may be added that through the length of time they had been buried their value from a commercial standpoint had been lost. The various pearl-gathering fevers that have, from time to time, prevailed in different localities are described, and one can scarcely wonder at them when the chance of making a lucky 'find' is considered, even though, as in other lotteries, the blanks far outnumber the prizes. The pearl-button industry which has arisen in some of the Western States has assumed considerable proportions, employing over 1,500 people, and, between the search for pearls and the use of the shells for making buttons, the Unios in many localities are threatened with extermination.

THE WASHINGTON MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE recent meeting of the American Ornithologists' Union—as may be seen by the report of Secretary Sage in the last number of this JOURNAL—was characterized by the large number and wide scope of subjects covered by the papers presented, ranging as they did from those of a popular nature to the strictly scientific. Among the former Mr. Chapman's delightful description of a visit to the Bird Rocks of the Gulf of St. Lawrence easily stands first, accompanied as it was by fine illustrations of the feathered inhabitants of this ancient and historic bird colony. Although the numbers of birds have sadly diminished since Jacques Cartier wrote that these islands are as full of birds as any meadow is of grass, yet enough remain to make a goodly showing, and the white lines of nesting gannets still form an impressive sight.

Dr. T. S. Roberts, of Minneapolis, and Mr. W. L. Bailey, of Philadelphia, exhibited a number of views of birds and their nesting places, some of them veritable triumphs of patience and ingenuity over natural obstacles. This photographing of wild birds and the study of their habits cannot be too strongly commended to our younger ornithologists, not only because it furnishes plenty of good work near home, fraught with no harm to the birds, but because we need to know much more than we do of the habits and life histories of even our commonest birds. The Robin, for example, is a bird so common as almost to be treated with contempt, and yet Mr. Brewster and Mr. Widmann have shown us how much there is of interest about it.

Mr. Witmer Stone, on the part of the Committee on Bird Protection, presented an extensive report encouraging as indicating the growth of sentiment throughout the country. Unfortunately, however, the question of protecting the birds is much

like the temperance question, depending more upon public sentiment than upon law, since laws are inoperative without public approval to enforce them. So long as fashion demands feathers and there are birds to supply them, so long will feathers be worn, and it is to be doubted if laws directed against the wearing of feathers would be held constitutional. Attention was justly called to the collecting fad which possesses so many of our younger ornithologists, and which in its worst phases is not a whit better than the collecting of postage stamps, only to see how many may be obtained. The mere possession of any number of bird skins and bird eggs no more makes an ornithologist than the owning of paints and brushes constitutes an artist, yet it is evident from the abundant catalogues of dealers in bird skins and eggs that there is far greater demand for these than the needs of ornithology warrant. From a scientific standpoint Dr. Jonathan Dwight's observations on the moulting of birds and Mr. William Palmer's on the early stages of feathers were the most important presented, dealing as they did with subjects concerning which we have much to learn, and which have important bearings on the phylogeny and classification of birds. While these subjects have both been worked at in a more or less desultory way, we need a large number of carefully accumulated facts on both points. Mr. Palmer presented a genealogical tree and scheme of classification based on the condition of the neossoptiles, or first feathers, but this is to be regarded as purely tentative. While birds must be classified by the resultant of a number of characters, and not by any one or two, yet Dr. Gadow has pointed out the value of taxonomic arrangements based on a single character, since each will contribute something good; therefore, it is to be hoped that Mr. Palmer will continue his work.

F. A. L.

CURRENT NOTES ON ANTHROPOLOGY.

ORIGIN OF NEOLITHIC ART IN FRANCE.

M. Gabriel Carrière has an article in *L' Anthropologie*, August, 1898, on the palethnology of southern France, in the course of which he makes some important general statements. The same population, ethnically, continued after the neolithic period through the bronze age. The introduction of metal was not accompanied by conquest and a change of physical type. The constructors of the dolmens and other megalithic monuments developed their own culture, and their remains have not yielded a single object to which one should attribute an oriental origin, or class with the art products of Hissarlik, Mycenæ or Egypt.

This conclusion is fully in the line of many recent researches in western Europe, which dispel the old notion that its primitive culture was introduced by Phenician, Greek or Egyptian navigators.

PALÆOLITHIC STATIONS IN RUSSIA.

Deposits which can be referred to the Palæolithic period are excessively rare in Russia; indeed, some archæologists deny that any have been found. One rather promising site is on the right bank of the river Dnieper, close to the city of Kiew. In a gravel deposit there, directly overlying the tertiary clay, and at a depth of 19 meters below the surface, M. Chvojka unearthed bones of the mammoth and cave bear, along with flint chips, charcoal and dressed stones of rude form. While the finder believed the deposit of inter-glacial origin, Professor Armachevsky, of the University of Kiew, places it post-glacial; and the types of stone implements, according to M. Volkov, who reports the facts, are not extremely ancient, but point rather to the period of transition from the palæolithic to the neolithic, of which latter period well-marked remains exist in the same locality. This station, therefore, is not certainly very