

orbit has acceleration and radiates energy so that its motion dies away. The dying away of the motion of a circular row or ring of electrons in this way is excessively slow if the number of electrons in the ring is great and if the velocity is small as compared with the velocity of light (see J. J. Thomson, *Phil. Mag.*, December, 1903). In fact, the time required for the angular velocity to fall from a value slightly above the critical value required for stability to the critical value might easily be a matter of millions of years under certain conditions.

It is interesting to note, although perhaps useless, considering the widespread confusion of the fundamental ideas of thermodynamics, that this electron theory, pointing as it does to finite systems which apparently never can settle to thermal equilibrium, suggests a class of phenomena, sensible and *steady* phenomena too, which are on the wrong side of thermodynamics, that is, on the side opposite to mechanics; phenomena which are to be treated by developing a systematic theory of atoms as isolated systems and the subsequent merging of this systematic theory of single atoms into a statistical treatment of aggregates of atoms; but this is another story. W. S. F.

A HEAVY JAPANESE BRAIN.

THROUGH the kindness of my friend, Mrs. Helen H. Gardener, now in Tokio, I am able to publish the following extract from the post-mortem examination of Professor K. Taguchi, the celebrated anatomist, of the College of Medicine in the Tokio Imperial University. His death took place in Yumi-cho, Hongo, on February 4 of this year, and, in accordance with the terms of his will, his body was dissected by his colleagues at the college. Professor Taguchi is perhaps the first of his race to bequeath his body in this manner. His work on the brain-weight of the Japanese has been referred to by the writer in *SCIENCE* (September 18, 1903). His own brain is the heaviest on record among the Japanese, and in the list of eminent men throughout the world, whose brains have been weighed (107 in number) it occupies second place. Taguchi's brain-weight (1,920 grams or 67.7 oz.

avoir.) exceeds the highest recorded Japanese brain-weight by 130 grams (or 4.5 oz.).

"Extract from report of the post-mortem examination of Professor K. Taguchi on February 5, 1904, in the Pathological Institute, Tokio, by Professor Dr. K. Yamagiwa:

"Age, 66 years.

"Body-weight, 49,000 grams.

"Brain-weight, 1,920 grams.

"Clinical diagnosis: Cirrhosis of the kidney.

"Anatomical diagnosis: Hypertrophy with dilatation of the left ventricle of the heart; endocarditis valvularis chronica fibrosa adhæsiva aortica; endocarditis valvularis chronica fibrosa mitralis; œdema pulmonum; hypostatic pneumonia of lower lobe of left lung; nephritis chronica interstitialis; cystic degeneration of the kidney; atheroma in the aorta."

EDW. ANTHONY SPITZKA.

PROFESSOR RUTHERFORD ON RADIUM.

PROFESSOR E. RUTHERFORD, of McGill University, lectured before the Royal Institution on May 20, on 'Radiation and Emanation of Radium.' According to the *London Times*, the lecturer first showed the power of radium to excite phosphorescence and to discharge a charged electroscope, and then described the properties of the three kinds of rays which it had been found to give off. In addition it gave off an emanation which behaved like a gas and could be condensed by cold; it could also be secluded in the radium itself, and was liberated when the salt was dissolved in water. This emanation, though exceedingly minute in quantity, possessed three-quarters of the characteristic powers of radium and all its properties. If we could collect a cubic inch of the emanation, the tube that contained it would probably melt, while a few pounds would supply enough energy to drive a ship across the Atlantic, though each of those pounds would require 70 tons of radium to supply it. In regard to the process going on in the emission of the emanation, he advanced the theory that radium was continuously producing it, but that when produced, instead of remaining constant, it was continuously being changed into something else. He supposed that some atoms of the radium in some conditions be-