

from the regular curved line of the brain surface enables the brain of man to be distinguished from that of woman, in which it does not do so. Pierret, of Lyons, has demonstrated the constant relations existing between the volume of the motor and sensory cells of the nervous centres and the length of tract over which incitations emanating from, or returning to, them have to traverse. Luchsinger's late experiments satisfactorily prove that there exists not only a general centre for muscular movements, for the vaso-motor and sweat nerves in the medulla oblongata, but that minor centres are also dispersed throughout the entire length of the cord; that these centres can act independently after division of the cord, and that they are excitable by the same agents as the centre in the medulla oblongata. M. Ranvier announces that the nerves terminate in the smooth, as in the striped, muscles in a more or less arborescent expansion of the axis-cylinder. Recent researches of Vulpian appear to authorise the admission that the nerve fibres acting as dilators of the pupil come directly from the brain, mixed probably with fibres from such of the cranial nerves as have connection with the ophthalmic ganglion. Ranvier, Helmholtz, and Stirling have found that muscle will respond to a stimulus of less than 0.00005 second's duration. MM. Livan and Cazeneuve, as a result of some sixty experiments, have determined that the normal epithelium of the bladder absorbs nothing; but when injured, the mucous membrane may become absorbent. Marc Sée has shown by measurement that the united calibres of the bronchi are equal to that of the trachea, and the calibres of the bronchioles equal to that of the bronchi from which they spring. Hence the respiratory tube is a cylinder, and not a cone. Lautenbach, of Philadelphia, as a result of recent experiments, has reached the conclusion that, beside the respiratory centre, or centres, in the medulla oblongata, there exist in the spinal cord nervous mechanisms which may keep up the respiratory movements after destruction of the former. M. Cyon has arrived at the conclusion that the semicircular canals are the peripheral organs of the sense of space. Paul Bert, at the *Académie des Sciences*, announced that the car-

bonic acid in the blood must be in a state of combination; for when the alkalis are saturated, and the gas appears in excess, in simple solution, death rapidly ensues. M. Laborde has determined that the embryonic heart is set in motion, and enters on its functions, when scarcely formed. By the twenty-sixth hour of incubation (and perhaps sooner), the pulsation of the cardiac tube may be recognised. The heart alone, amongst the organs in process of formation, functionates as it is being developed. V. Mering has made a series of experiments, the result of which substantiates neither Pavy's statement, that muscular exertion and dyspnoea increase the sugar in the blood, nor that of Bernard, that sugar quickly disappeared from the blood. He establishes that the absorption of sugar is effected by the veins. M. Richet has at length positively determined the nature of the gastric juice to be a chlorhydrate of leucine. Dr. Robert Battey, of Georgia, has shown that the entire alimentary canal is permeable by enemata, and that the ileo-cæcal valve does not prevent the passage of fluid from the colon into the cæcum, if sufficient pressure be employed. Heidenhain has shown, in his recent researches on the salivary secretion, that there is strong reason to believe that the secretion of the watery portion and salts, on the one hand, and of the organic material, on the other, are independent of one another and under the control of two different sets of nerves—the secretory and trophic. J. Bermann, from a series of researches, has determined that the submaxillary gland contains, besides the ordinary acinous glandular tissue, an intercalated tubular gland, the ducts of which are much contorted and intertwined. They have an epithelium peculiar to themselves, and empty into Wharton's duct. MM. Afanassiew and Pawlow have demonstrated that sensory irritation of the skin is capable of inhibiting the secretion of the pancreas. As a contribution to the physiology of sleep, A. Strumpell records (Pflüger's *Archiv*) the case of a patient, aged 16, who was shut off by anæsthesia from all external impressions save through the left eye and the right ear; when these were closed, he at once fell asleep. Dr. Oertel, of Munich, has described a process of