

2nd. In connexion with the circulatory system—the first point to attract our attention, in the year's record, is the subject of the origin and distribution of animal heat which has been under investigation at the hands of M. Claude Bernard. This eminent physiologist has determined that the "arterial temperature remains unchanged in the aorta and large arteries, whilst that of venous blood varies considerably at different points of the venous system; at the surface of the body, near the four large joints, and at the lower part of the neck, venous blood is colder than arterial, while in the heart it is much warmer." M. Bernard concludes from his experiments "that animal heat is generated in all the tissues, in the muscles, nerves, nervous centres, glands, &c." Contraction of muscle, and secretion from glandular structure are invariably preceded by diminution of temperature, quickly followed by elevation. Mere vasomotor excitement may increase capillary circulation, but is attended with diminution of temperature, while thermic action is always attended with elevation of temperature. The influence of the spinal cord on temperature has been the subject of experiment by M. Parinaud of Paris from which he concludes that "the spinal cord influences animal heat by means of nerves distinct from the vaso-motor system." He does not, however, "invent a special system of Calorific nerves," nor any "specially localized thermic centre in the cerebro-spinal axis," nor does he deny the existence of "the moderator centres of calorification" of Tscheschichin.

M. Albertoni has shewn (*Brown-Sequard's Archiv. de Phys.*) that blood transfused from one animal to another of the same species forms living tissue and constitutes a blood-graft. That in an animal of another species the corpuscles dissolve, their colouring matter is eliminated by the urine, and their stroma blocks up the capillaries, giving rise to serious accidents or even death. The serum alone however may be transfused with impunity. On the 14th of June, before the Royal Society, Dr. Pavy described a new gravimetric method for the quantitative determination of sugar in the blood. It appears from Pavy's results that Bernard's figures are invariably too high, and that the decoloration test is radically fallacious in appli-

cation. "No material difference exists in the amount of sugar contained in arterial and venous blood," and Bernard's erroneous views to the contrary must be rescinded. M. G. Hagera presented to the *Acad. des Scienc.* a note upon the character of the blood of new-born infants. It appears from this that in them the blood leaving the capillaries is almost as dark as the venous blood; that some of the red corpuscles are larger, some smaller than those of the adult; that the number of red corpuscles per millimetre is increased on the average by 489,000, if the umbilical cord be not tied, until pulsation in it has ceased. One of the most striking features of infantile blood is the fluctuations in its anatomical composition both in the variety of corpuscles and their number. Dr. Brigidi of Florence, records (*Commentario Clinico de Pisa*) a case of persistence of the Thymus Gland in a man aged 29 who had died of Phthisis under his care. Prof. Preyer of the University of Jena promulgated at the International Medical Congress at Geneva his views upon the cause of sleep. He holds that the somnolent state is due to the accumulation in the blood of lactic acid, creatine, &c., and that awakening follows the complete oxidation of these substances. The experiments of Rosenbach of Jena upon the mechanism of Respiration go to shew that the ordinary movements of respiration are induced by the quality of the blood in the vessels of the medulla oblongata, or, as Rosenthal expressed it, by the venosity of the blood in these vessels; and that the vagus nerves are really inhibitory nerves for the acts of respiration. For the cutaneous system, B. Lucksinger has experimentally shewn "the direct functional dependence of the sweat secretion on certain nerve irritations, and thus places the relation of this obscure process to the nervous system on the same footing as Ludwig, Bernard, and Heidenhain have done for other glands and secretions. On the side of the alimentary system, M. Richet's investigations in a case of gastric fistula in one of the Paris Hospitals shew that the sensation of hunger does not depend upon either the acidity of the gastric juice or emptiness of the stomach; it also appears that there is little or no free lactic acid in the gastric juice, and that the acidity of the secretion depends upon the