

Human Muscles, and Their Most Economical Speed, by A. V. Hill. The author describes experiments by which the maximum work performed by human muscles in a single voluntary contraction may be determined, and also the various factors affecting the work done in, and the mechanical efficiency of, muscular movements in man.—The Reaction of Resting and Active Muscle, by A. D. Ritchie. From the heat-production and lactic acid formation of muscles during activity it is possible to calculate how much lactic acid is concerned in a single muscle-twitch. Electrometric observations indicate that there is no appreciable change in the hydrogen-ion concentration of frog's muscle during moderate activity.—The Relations of Carbon Dioxide in Acidified Blood, by T. R. Parsons and Winifred Parsons.

MINERVA MEDICA. Gazzetta per il medico pratico. Via dei Mille, Turin. Annual subscription, 25 lire; foreign, 40 lire.—Our Italian colleagues are energetic in stimulating the progress of medical science by issuing new periodicals: we have just received the two numbers of Vol. I. of this journal, which appeared last December, and the first two numbers of the current year. The editor in his dedication alludes to the difficulties and anxieties which beset anyone who in the aftermath of the war requires the help of the press in order to make known his own studies in medical science, and indicates that the programme of the new gazette is to give the hospitality of its columns to all kinds of medical work, reviews, extracts, original clinical observations, and notices of professional and scientific interest. He has succeeded in obtaining the collaboration of both university and hospital elements in Turin.

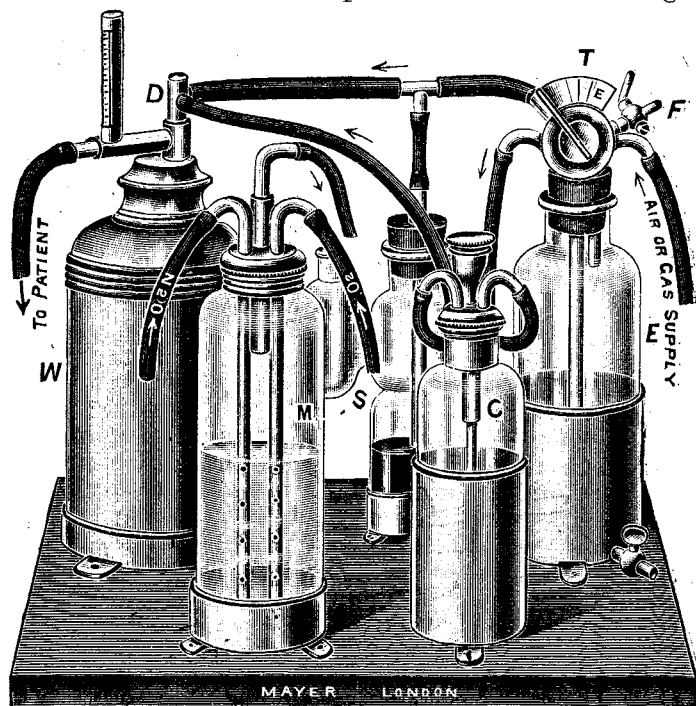
The papers in the four numbers are of decided interest, particularly those on the evolution and sequelæ of epidemic encephalitis by Profs. Ceconi, Micheli, Gavello, and Negro. There are other good papers on the Sachs-Georgi Reaction, by Dr. Romagnolo, and on the Surgery of the Bile Passages, by Dr. Uffreduzzi. Extracts from foreign journals are numerous. The cover is novel and picturesque.

IN the JOURNAL OF THE ROYAL ARMY MEDICAL CORPS for February further information is given about malaria in Macedonia. Captain K. McLay tells how Captain T. S. Hele, the physiological chemist to the Malaria Inquiry Laboratory, found that quinine, if given by the mouth, was more rapidly excreted in the urine than if given by intramuscular injection. That observation seems to be supported by Captain McLay's experience that, after oral administration of quinine, 80 per cent. of benign tertian cases cease to show parasites after two days, but only 45 per cent. after intramuscular or subcutaneous administration, consequently he is of opinion that quinine should always be given by the mouth if tolerated.—Lieut.-Colonel W. P. MacArthur, of the Army School of Hygiene, reports his discovery of a new ciliate, parasitic on, and destroying, larvæ of the mosquito *Theobaldia annulata*. The eyes of the larvæ are first attacked.—Major J. E. M. Boyd, in charge of the entomological laboratory, gives an account of the entomology of the dyke-land about Sandwich, with notes on cimex and pediculus. He notes that the irritation caused by cimex does not develop until 24 hours after the bite, a fact of some medico-legal interest, for injustice may be done to the lodgings in which the irritation develops immediately after a single night's occupancy.—Major Angus Macdonald thinks that medical officers and boards are apt to be unduly kind to "debility following malaria" in the assessment of disabilities, and recommends hæmoglobin estimation as a test of returning health.—Major G. R. Panton has a suggestive paper on the Convalescent Dépôt as a Permanent Peace Organisation. Something is wanted to cheer a convalescent up, make him feel he has recovered though still not quite fit for duty, and bring him back under discipline; this Major Panton believes can be best done by keeping him away from both sick and well, and giving him games and graduated work.

New Inventions.

A COMBINED ANÆSTHETIC APPARATUS.

THIS combination is based upon the apparatus for administering warm anæsthetic vapours which I described in THE LANCET of Jan. 8th, 1916. It consists of five principal parts mounted on a wooden base—viz., E, an ether bottle; C, a Dudley Buxton's chloroform bottle; S, a mercury safety-valve; M, a sight-feed mixing chamber; and W, a thermos flask of quart capacity for warming the issuing vapour. E and C stand in metal jackets, which are partly filled with warm water in order to prevent excessive cooling of



the anæsthetic. T is the regulating tap which directs the flow of air or gas either (a) straight to the patient, or (b) through the anæsthetic, in any desired proportion; it passes then to D, which is a double metal tube immersed in the hot water of the thermos flask. F is the tap for replenishing the ether supply during intra-tracheal insufflation. I am indebted to Dr. Stanley Rowbotham for permission to use this excellent device.

When the apparatus is to be used for the insufflation of ether or nitrous oxide-oxygen-ether, or the inhalation of nitrous oxide-oxygen-ether, the chloroform bottle should be detached, and the efferent limb of T joined direct to D. In the illustration, the apparatus is connected up for the administration of warm ether, chloroform, or mixtures of these two. For intra-tracheal insufflation of ether, the foot-bellows or motor-pump is connected to the afferent limb of T. By opening the tap F the pressure is reduced when desired. For the inhalation or insufflation of nitrous oxide-oxygen-ether, the tubes of the mixing chamber M, marked N_2O and O_2 are attached to the nozzles of their respective cylinders; these are three in number—viz., two N_2O of 50 or 100 gallons capacity, and one O_2 of corresponding size, which are placed vertically in a three-ringed holder screwed to an upright rod; the lower end of this upright is fixed to a wooden base, and the upper end carries a metal plate, which supports the "combined apparatus" at a convenient height from the ground. A spirit lamp is used to keep the nitrous-oxide valve warm; this ensures a steady flow of the gas. The three-ringed holder and stand are described in Proc. Roy. Soc. Med., December, 1919. In all cases the vapour is administered warm. A further advantage is that induction can be carried out with nitrous oxide-oxygen-ether, an intra-tracheal catheter passed, and anæsthesia continued by the insufflation of these gases, if desired. The apparatus is made by Messrs. Mayer and Phelps, New Cavendish-street, W.

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