

to increased resistance, such as that produced by various lung affections, use of respirators, mine-rescue apparatus, &c., but, so far, no very definite investigations have been made as to how the adaptation is brought about and at what point it begins to fail. This investigation partly fills the gap. The experiments were made on man, the subject breathing through a modified form of the special apparatus usually employed for determining respiratory exchange. The authors summarise their results as follows: 1. The normal response to respiratory resistance is slowing and deepening of the breathing. 2. With excessive resistance the respiratory centre begins after a time to become fatigued, and the breathing, as an equally natural consequence, becomes shallowed and more frequent. 3. Anoxæmia hastens greatly the onset of fatigue and the ease with which it is produced. This explains the characteristic action of anoxæmia in producing relatively shallow and frequent breathing. 4. As shallow breathing itself is both a result and a cause of anoxæmia, a vicious circle of a very dangerous kind is apt to be produced by anoxæmia or any other cause which tends to impair the vigour of the respiratory centre. The immediate cause of death, therefore, in many cases, is due to failure of the respiratory centre.—Studies in the Regeneration of Denervated Mammalian Muscle. I., Volume Changes and Temperature Changes; II., Effect of Massage. By F. A. Hartman, W. E. Blatz, and L. G. Kilborn. It is known that one of the immediate results following section of a nerve to a muscle is a dilatation of its blood-vessels, with increase in the volume of the limb; the temperature of a muscle is also increased after denervation. The authors studied the volume changes in anæsthetised cats (urethane) by means of a plethysmograph. As to volume changes, the maximum dilatation of the limb occurs from two to six hours after denervation. The extent of this dilatation is probably a little more than 2 per cent. of the total volume. In some individuals constriction of the denervated limb begins soon after the maximum dilatation has been reached. In others constriction may not begin for a few hours after this time. Complete recovery of the original volume occurs in many cases within 24 hours. There may be an "over-recovery" as time goes on. Constriction of the denervated limb may take place without a proportionate lowering of the limb temperature. Concerning temperature changes, the duration of the increased temperature resulting from denervation is exceedingly variable. In many cases there is an "over-recovery" of the temperature. This occurs from a few days to several weeks after denervation. Increased circulation and fibrillation do not seem to account entirely for the maintained supernormal temperature of a denervated limb. The effects of massage were studied on rabbits. Without going into details, it would seem that the authors' observations indicate that massage of denervated muscle is slightly beneficial. Further observations are promised.—Vaso-motor Centres. Part I.: Effect of Strychnine on Blood Pressure in the Spinal Animal, by J. N. Langley. The opinion generally held to-day appears to be that strychnine has little direct action on spinal vaso-motor centres. Experiments made on decerebrated and curarised cats after section of the spinal cord show that if the excitability of the cord is not decreased by feeble circulation a large rise of blood pressure is caused by a small amount of strychnine (0.5-1.0 mg.). The maximum rise obtained is nearly as great as that obtained in the bulbo-spinal animal. Thus the theory that all vascular reflexes are bulbar falls to the ground. Strychnine causes a quick and large rise of blood pressure in the decapitated cat after excision of the suprarenal glands. The difference between the amount of strychnine which causes no rise of blood pressure and that which causes a maximal rise is small. After a large rise of blood pressure has been produced by about 1 mg. of strychnine, subsequent injections cause a small and decreasing rise followed by a fall below the original level until the effect becomes trivial. When the effect has become trivial and the blood pressure is raised by adrenalin or by stimulation of the spinal cord, the injection of 10 or more milligrammes of strychnine may cause a quick primary fall of blood pressure. The fall so produced is of peripheral origin. When repeated small amounts of strychnine are injected, no large rise is produced by any subsequent amount. It is inferred on the theory that strychnine stimulates some central nerve cells, that the degree of stimulation depends upon the rate at which strychnine is taken up, and that when successive small amounts are given it is gradually taken up nearly to saturation point. The centres causing muscular movement and those causing rise of blood pressure are not connected in the spinal cord.

There are also contributions on the following subjects: The Response of Human Sensory Nerves to Currents of Short Duration (E. D. Adrian); A Study of Season Changes in Avian Testes (Alexander Watson); A Simple Photographic Method of Registering Vertical Movements on a

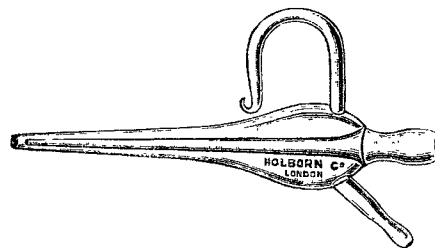
Horizontal Plane (D. S. de Waard); Neuroglia and Non-medullated Fibre in Nerves (Winifred Parsons); Acquired Tolerance for Alcohol in the Frog's Heart (Fred Ransom).

In the *Military Surgeon* (Washington, D.C., U.S.A.) for August Captain Shivers describes the administrative measures taken in a large camp in New Jersey in order to deal adequately and speedily with each of the 350 to 400 venereal cases seen daily. Every needed diagnostic aid was available, and when the patient's history and treatment had been succinctly recorded he received prescription and treatment without possibility of evasion. The patients were formed into battalions and divided into platoons according to the severity of their disease. The first platoon (acute cases) remained in bed; the second platoon (improving) were allowed up, and did the arm movements of physical drill; the third platoon did arm and half of the leg exercises; the fourth platoon did all the exercises, and were not sent to duty till they had been well for a fortnight. Complications are reported as rare.—Major Herbert Fox gives a very interesting account of measles epidemics in another large camp, this time in Kentucky, between October, 1917, and November, 1918, aggregating in five waves some 3000 cases. The first outbreak—October to December, 1917—consisted of 970 cases, including serious pneumonia (8 per cent.) and empyema, mainly due to the pneumococcus. The second outbreak—in March, April, and May, 1918—comprised 414 cases, of which 13 per cent. developed pneumonia, due mainly to the hæmolytic streptococcus which occasionally even gave rise to septicæmia. The cases in the summer and early autumn were numerous but slight. In September, October, and November, 1918, there were 865 cases; 13 per cent. of these developed pneumonia, and more than a third of these died. The pneumonia on this occasion was due mainly to the hæmolytic streptococcus, but also to the pneumococcus (generally Type IV.). In November two different epidemics, measles and influenza, were prevalent independently. The sharp rise in measles preceded that in influenza by a fortnight, but the influenza epidemic reached its maximum immediately, and was over before the measles epidemic (which took five weeks to develop) attained its peak. The mortality curves were also independent. The measles mortality was highest in the first four weeks (particularly in the first fortnight, before the influenza had appeared at all), while the influenza mortality was still rising when that from measles had begun to fall, and did not reach its climax till ten days after the epidemic itself had begun to fade. As to prevention, sheets were hung across dining tables to prevent men coughing into one another's faces, entertainments were held as much as possible in the open air, and the men's work was lightened. The most beneficial change was to lay the responsibility for a man "going sick" not on him, but on the medical officer, who had to inspect all the men of his group every day. Men were thus isolated when they first began to be ill, and, indeed, before they themselves realised they were ill. Pneumonia decreased when all cases had their throats swabbed weekly and all carriers of *Streptococcus hæmolyticus* (46 per cent. of all cases) were isolated in special "infected" wards.

New Inventions.

A NEW URETHRAL ALL GLASS TWO-WAY IRRIGATING NOZZLE FOR GONORRHOEA.

THE instrument shown in the illustration has been designed by me to allow a free stream of the irrigating fluid to wash out the whole of the anterior urethra. The glass handle prevents the staining of the patient's hands



when permanganate of potash is being used. The urethral end of the instrument should be greased with lubafax (Burroughs, Wellcome and Co.) and inserted for one inch. The nozzle is attached to the irrigation jar by

flexible tubing and a stopcock. The jar may be raised up to six feet in height and pressure may also be increased by telling the patient to block up the exit pipe with his first finger. It has proved by long experience to be one of the most effective nozzles for irrigation in acute gonorrhoea. The nozzle is made by the Holborn Surgical Instrument Company, 26, Thavies-inn, London, E.C.

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