

slowing of the heart beat with a decrease in amplitude until finally the ventricular beats became irregular or even stopped.

Action on the Isolated Intestine and Uterus. Freshly isolated intestine and uterus from rabbits and dogs were used. The tissue was suspended in Locke's solution kept at 38°C. Gelsemicine HCl in a concentration of 1:1,000,000 in Locke's produced an increase in the amplitude as well as in the rate of contractions of the isolated intestine of rabbit or dog. Higher concentration resulted in an increase in tone followed by a diminution both in amplitude and rate. When the concentration of the gelsemicine HCl was increased to 1:100,000 the decrease in rate and amplitude was very marked and the tone was also decreased. In this stage the action of barium chloride was completely antagonized. Atropinization did not alter the action of gelsemicine.

Isolated rabbit or dog uterus reacted toward gelsemicine somewhat differently from the intestine in that there was a marked preliminary increase in tone with all the concentrations given above. There was a greater increase with the higher concentration, followed by a gradual decrease of tone until it was lower than normal. The normal rhythmical movements decreased in both rate and amplitude. The curve obtained simulated that with barium chloride although the action of the latter was partially antagonized. Ergotoxination and atropinization did not alter the action of gelsemicine.

Action on the Pupil. Two rabbits were tried. After application of a drop of 0.2% solution of gelsemicine hydrochloride a gradual mydriasis developed in about 20 minutes. The mydriasis was not complete but the light reaction was eventually lost. Both animals died in about one hour after the administration of the drug, apparently due to rapid absorption from the conjunctiva.

5531

Acid-base Paths in Human Subjects.

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Using the micro-acid-base technique¹ a study has been made of

¹ Shock, N. W., and Hastings, A. B., *PROC. SOC. EXP. BIOL. AND MED.*, 1929, **26**, 780.

the acid-base variation under experimental conditions of 6 patients (2 cases of nephrosis, 2 of diabetes, and 2 of nutritional edema). The normal acid-base balance was displaced toward the acid side by the administration of ammonium chloride or hydrochloric acid, and toward the alkaline side by the administration of sodium bicarbonate. Frequent determinations of the acid-base balance were made during the course of the displacement from and the return to normal. Approximately 7 determinations were made during the 8 hours following the administration of the salts, and several determinations were made on the succeeding days.

The results when plotted on a triaxial coordinate chart may be described as follows: After a change is produced in the serum bicarbonate by fixed acids or alkalies the path taken by the blood is toward a changed pH and CO₂ tension. The change in pH is approximately 2 times the corresponding change in CO₂ tension when the latter is expressed logarithmically. The direction may be stated as being approximately at right angles to the direction taken by the CO₂ absorption curve of blood plotted on the triaxial coordinate chart.

5532

Coagulation of Egg Albumin by Supersonic Waves.

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Schmitt, Olson and Johnson¹ observed that solutions of egg albumin when exposed to supersonic waves became turbid and the albumin precipitated out in fine shreds. Not only is the mechanism of this novel method of coagulation entirely unknown, but it is not even certain whether the coagulation was caused by the mechanical vibration itself or by the heating effect of electric and supersonic waves, since these investigators did not take the precaution to cool the solution during exposure. The present communication extends their observation and examines the mechanism of coagulation by supersonic waves.

The oscillating current was generated by two 75 watt tubes (UX. 852) connected in a modified Hartley circuit. The quartz

¹ Schmitt, F. O., Olson, A. R., and Johnson, C. H., *PROC. SOC. EXP. BIOL. AND MED.*, 1928, **25**, 718.