

then made up to 500 cc. again. This extract which we know as hydrochloric X seemingly contains the active principle of the parathyroid. Dogs which had been completely parathyroidectomized and which were showing symptoms of tetany, recovered. Sometimes on injection, the symptoms increased at first before recovery took place.

This extract we have also found beneficial in the treatment of chronic inflammations such as gastric, duodenal, and varicose ulcers as well as cystitis or osteomyelitis.

From this hydrochloric X the active constituent may be precipitated by phosphotungstic acid, but we have not been able to redissolve the active constituent from this precipitate.

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The respiratory wave in arterial blood pressure.

By MAURICE B. VISSCHER and ALICE RUPP (by invitation).

[From the Department of Physiology, University of Minnesota, Minneapolis, Minn.]

The problem of the causation of the respiratory variations in blood pressure is an old one, but one that has resisted solution surprisingly long. Examination of the literature on the subject shows that diametrically opposite observations have been made upon the relation between the phases of respiration and the rise and fall of blood pressure. About half of the workers have found an inspiratory rise, and half an inspiratory fall.

In examining the factors heretofore mentioned in explaining the phenomenon it is apparent that the possibility that factors tending to change blood pressure might not be immediately effective, has been neglected. In other words, the possibility that the effects of inspiration might show up in expiration, has been neglected.

In experiments in which the inferior vena cava, the superior vena cava and the azygos vein were clamped separately and in combination, it was found that there was absolutely no sign of these changes on the arterial pressure trace for a period, on the average, of three heart beats. Very evidently there is a latent period of three heart beats in this process.

The changes in arterial pressure were similarly recorded when variations were artificially produced in the thoracic cavity. Similar latent periods were observed.

These experiments were repeated upon animals with denervated hearts and the same observations made, excluding a nervous factor.

It is evident that the effects of inspiration may show up entirely in expiration and the effects of expiration in the succeeding inspiration. The heart-respiration ratio determines in what phase of respiration the various changes will appear.

Many published arterial pressure tracings have been examined and it has been found that this explanation is quite valid in interpreting them.

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Production of rickets and osteoporosis on diets of purified food substances.

By J. F. McCLENDON.

[From the Laboratory of Physiological Chemistry, University of Minnesota Medical School, Minneapolis, Minn.]

In experiments on rickets, osteoporosis and xerophthalmia by my students and myself, white rats belonging to litters 1-150 were fed diets 1-467. In most of these white flour was an ingredient but some were made of purified food substances. It was found that a group of vitamins known as Vitamin A were all contained in the cod liver oil used; that commercially dehydrated spinach, or spinach dried in the laboratory at a low temperature, contained a growth promoting Vitamin A, and prevented xerophthalmia, but had no detectable antirachitic effect. Its effect in preventing osteoporosis was extremely small, and since the spinach contained calcium it was very difficult to decide whether the effect was due to calcium or due to vitamin. Extracts made from this spinach also failed to show antirachitic and antiosteoporotic effects. Vitamin B was derived from bakers' yeast. In most of these series of experiments, the antirachitic vitamin was kept low and constant while the calcium