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Effect of fatigue upon gastro-intestinal motility.**By LUDWIG KAST.***[From the New York Post Graduate Medical School.]*

On fifty-four patients and healthy individuals tests were made regarding the motor power of the stomach and intestines by means of X-ray examinations, and the stomach tube. In addition carmine was used for the determination of time during which same was entirely eliminated from the body. The tested subjects were kept on a standard diet for a number of days and the motor efficiency of the stomach and intestines was determined repeatedly by these methods. By taking the average, it was determined how long it took the stomach, and separately, how long it took the intestines, to propel the given amount of food. During the period of tests, the amount of physical activity was regulated and the mental activity approximately limited. Without any change of diet and mental activity, the physical activity was markedly increased or decreased and the effect of same upon the evacuating power of the stomach or intestines observed. At other times, without change in the diet or the amount of physical exercise, the amount of mental efforts was markedly increased or decreased and the effect observed in the same manner. Summarizing the results of such experiments, it appears that the healthy individual showed very little variation as regards the evacuating power of the stomach or intestines as long as the physical exercise was not excessive. Mental efforts had no perceptible effect.

In patients with moderate and marked degrees of atony and splanchnoptosis, the evacuating power of the stomach and intestines decreased in direct proportion to the amount of mental and physical exertion. Physical exertion had the same effect in such individuals if the patient was kept in a horizontal position during these exercises and during the period of observation in order to eliminate the effect of splanchnoptosis in the erect position. In patients who clinically appeared susceptible to the effects of fatigue, mental exertion was more marked in its delaying effect than physical exertion.

Recognizing the difficulty of even approximate measurements of physical and mental efforts during several days, it is evident that only a large number of similar experiments are apt to reduce the effect of accidental factors or of physiological fluctuations in the motor efficiency of the gastro-intestinal tract.

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On the behavior of the mammalian ovary and especially of the atretic follicle towards vital stains of the acid azo group.

By **HERBERT M. EVANS.**

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I have given elsewhere¹ a description of those cells of the mammalian body which react so predominantly even if not in a wholly specific way with vital dyes of the acid azo series as to justify their recognition as a great functional unit or cell class. For the cells in question it is suggested that we retain the old term macrophage, which although proposed by Metchnikoff without the kind or the complete extent of evidence now available for delimiting the class, nevertheless puts in the foreground their salient structural and functional peculiarity and has the further advantage of enabling us to coördinate these studies with those long made by the comparative pathologist.

It is worthy of note that in some of those cases of local tissue degeneration and death which one must regard as physiological or normal, the macrophages must, in analogy with the experience of pathologists, be actively concerned. This above all is exemplified by the cyclic changes undergone by the mammalian ovary. The strange cells which since the time of Pflüger have been known to be of assistance in atresia of the follicle and whose derivation from granulosa or theca or from leucocytes, *i. e.*, from practically every available source, has in turn been championed—are picked out by the azo dyes so brilliantly and so electively as to preclude the denial of their alignment as typical macrophage cells

There will be demonstrated a series of drawings of these colonies of macrophages in the atretic follicle of the mouse, rat,

¹ Evans, H. M., "The Macrophages of Mammals," *Am. Jour. Physiol.*, Vol. 37, No. 2, May, 1913.