

nothing like the increase in forced exercise; the carbon dioxide after a slight decrease, increased slightly and the oxygen increased (Fig. 2). The treadmill was then turned by hand. The cat, although travelling no faster than before, resisted by trying to cling and jump part of the time. Although it was made to travel only 960 meters in this manner, the blood sugar increased markedly; the carbon dioxide was much diminished, and the oxygen fell off slightly.

These experiments indicated that the development of aggressiveness and a fighting reaction is important in producing an increase in blood sugar. The carbon dioxide decrease is accounted for by the excessive ventilation (shown by the very great increase in the rate of respiration) accompanying such forced exercise.

## 282 (2514)

### A new method for the colorimetric determination of small concentrations of thymol.

By GEORGE W. PUCHER and LILLIAN A. BURD.

*[From the Laboratories of the Buffalo General Hospital,  
Buffalo, N. Y.]*

In order to evaluate the thymol content of sodium-fluoride, thymol mixtures used for the preservation of blood samples, the following simple method was devised.

Sulphanilic acid is diazotized and then coupled with thymol in alkaline solution. A reddish brown color stable for at least 50 minutes is obtained. The only alkali that gives satisfactory results is  $\text{NaHCO}_3$ .

METHOD (outline). 3 cc. of a 0.6 per cent sulphanilic acid solution (contains theory HCl necessary to form sulphanilic acid hydrochloride) and 0.5 cc. of 2.0 per cent HCl are pipetted into a sugar tube (Myers-Benedict). 0.5 cc. of a 1.5 per cent aqueous solution of  $\text{NaNO}_2$  are then added and after one minute 1 to 5

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\* Introduced by H. U. Williams.

cc. of the thymol solution to be analyzed. (The number of cc. of thymol solution used is diluted so that it will not contain more than 0.5 mg. thymol.) Allow to react 1 minute and then add 2 cc. of a 3.0 per cent  $\text{NaHCO}_3$  solution. Set aside in diffused light for 10 minutes and then read in a colorimeter against a standard thymol solution 2 cc. of which contains 0.2 mg. (or 0.5 mg.) thymol. Thymol solutions are best prepared by first dissolving the thymol in a small volume of alcohol and then diluting to volume with distilled water.

In order to obtain the best results by this method the reagents listed above must be prepared and used with an accuracy of at least  $\pm 5.0$  per cent.

### 283 (2515)

#### An undescribed constituent of semen.

By PIERRE A. FISH.

*[From the Department of Veterinary Physiology, Cornell University, Ithaca, N. Y.]*

In the study of spermatozoa with the darkfield microscope in April, 1920, my attention was attracted by the presence of very many minute particles which exhibited the Brownian movement. A number of specimens were examined, always with the same result, except that in perfectly fresh specimens of semen the Brownian movement was not distinctly apparent. In these specimens the particles seemed to be imbedded in a gelatinous matrix, so that the particles moved only when the matrix was moved by the penetrating or lashing movements of the spermatozoa. After some hours the gelatinous condition disappeared and liquefaction supervened. In this latter phase the Brownian movement of the particles became very active. If the cover glass be surrounded with a ring of oil to prevent drying, the particles and their movement may be observed for several days.

Up to date, the particles have been found to be constantly present in the seminal secretion of man, stallion, bull, boar and the testicular fluid of the rooster.

Counts were made of the number of particles by the use of the