about 22° C.; the amount of mercury was from eight to ten times that of the acid (by volume).

First experiment: Thirty cc. of concentrated sulphuric acid was run into the generating bulb, and allowed to stand for forty-eight hours, being shaken at intervals; I was unable to get any gas at all under these circumstances, and there was apparently no reaction between the mercury and the sulphuric acid. Thinking that possibly the presence of air might have some effect upon the reaction, I next measured a certain quantity (about fifty cc.) of rather damp mercury; this was run into the generating bulb and thirty cc. of sulphuric acid as well; after shaking at intervals for twenty-four hours, the air was remeasured and found to have *lost* four-tenths cc.; this loss was probably due to the presence of considerable moisture in the air when first measured; as a check this same air was conducted (thoroughly dried from its contact with the sulphuric acid) from the reading burette into another generating bulb, drawing in thirty cc. of concentrated sulphuric acid, and shaking again, as before, for about twenty-four hours, with a result of a loss of less than 0.05 cc., which is an error that might occur in any test.

In order to try the effect of the preponderance of sulphuric acid, one part of mercury to seventy by volume of concentrated sulphuric acid was taken (sp. gr. 1.84), introduced into a flask, and shaken violently for some time; no mercuric sulphate was formed, nor was there appearance of any other reaction; this was at a temperature of 25.5° C. From these experiments it is apparent that there is no reaction between mercury and sulphuric acid at ordinary temperature, and if Messrs. Baskerville and Miller found a reaction as they state, it must have been by means of some different method.

ON THE DETERMINATION OF FAT AND CASEIN IN FECES.

By E. E. Smith.

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IN the November number (1897) of this Journal, Herman Poole writes, in regard to this subject, that in searching the literature he "found nothing at all which would give even a fairly

approximate idea of the percentage of fat and casein." I desire to call this writer's attention to the following:

In studying the stools of jaundiced patients, Müller[1] determined the fats by the following method: The dried and finely powdered material is extracted with ether for three days, the residue from the extract washed with successive portions of warm water, dried and weighed, and divided into portions which are used (1) for the determination of ash by ignition; (2) for the determination of free fatty acids by titration in alcohol-ether solution with standard alcoholic potassium hydroxide, phenolphthalein indicator; (3) for the determination of the melting- and congealing-points; and to these may be added, if desired, (4) for the determination of the unsaponifiable residue.

The residue of the original material is digested with hot alcoholic hydrochloric acid, dried and again extracted with ether, and the residue from the extract either titrated or weighed, giving the fatty acids present in combination with alkaline earths. From these data are calculated the neutral fats, the free fatty acids and the soaps.

A serious objection to the method of extracting the dried and powdered material probably exists, for it has recently been demonstrated[2] that some substances, notably meat and milk products, give up only a small portion of their fat to the ether when extracted in this condition. Doubtless, then, more accurate results are obtained by Hoppe-Seyler's method of adding water to the fresh material to bring it to the consistence of a thin mush, evaporating somewhat to remove volatile substances and using the material in this condition for the extraction of the fats.

It may also be admissible for me to call attention to the long-standing discovery of Flint,[3] which the writer has apparently overlooked, that normally there is no cholesterol in feces. It is present in the bile, but in the upper intestinal tract is converted into a chemically different, though allied substance called, by Flint, stercorine. Flint's discovery has recently received confirmation in the observations of two European investigators,[4] who have redescribed stercorine under another name. There appears to be no doubt of the identity of their product and Flint's[5] stercorine.

[1] F. Müller: *Ztschr. klinische Med.*, *1887*, p. 43.
[2] Dormeyer: Pflüger's *Archiv. f. Physiol.*, **61**, 341.
[3] Flint: Physiology of Man.
[4] Boudzynski and Humnicki: *Ztschr. physiol. Chem.*, **22**, 396.
[5] Flint: *Ztschr. physiol. Chem.*, **23**, 363.