saccharine matter by adding a little yeast. The P_2O_5 can then be determined as usual. (*Ztschr. anal. Chem.*, **28**, *p. 67.*)

J. F. G.

Arsenic in Bone Phosphate Fodder. H. FRESENIUS.

Arsenic may be introduced through impure acids. A suitable method to determine the arsenic is by distillation. Place 10 grm. of the substance in a retort, add 100 c.c. of strong hydrochloric acid (1.19 Sp. Gr.); when the phosphate has nearly dissolved add 5 c.c. of a saturated solution of ferric chloride, and distill until only a small residue remains. Precipitate the arsenic in the filtrate by H_2S and weigh as As_2S_3. Of 25 samples examined, all contained arsenic in quantities ranging from 0.028 per cent. to 0.17 per cent. (*Ztschr. anal. Chem.*, **28**, *p. 64.*) J. F. G.

Modification of Kjeldahl's Method. DR. J. W. GUNNING.

The author recommends the use of acid potassium sulphate prepared by adding two parts of ordinary concentrated sulphuric acid to one part of potassium sulphate. This mass is semi-solid, but melts readily on warming. The special advantages claimed are that the acid is kept in a concentrated condition during the breaking down of the organic matter and therefore facilitates the decomposition. (*Ztschr. anal. Chem.*, **28**, *188.*) J. F. G.

Butter Analysis. L. F. WILSON.

In summarizing the results of the testing of 843 samples of butter fat the author arrived at the following conclusions:

a. Colostrum fat is very poor in volatile acids. In two cases the volatile fatty acids by the Reichert method required but 9.27 c.c. and 10.00 c.c. of $\frac{n}{10}$ alkali.

b. The volatile acids in the fat increase rapidly after calving, reaching the normal again in 5–7 days.

c. The alkali required in individual cases varied from 20.5 max. to 11.45 min.

Out of 797 cases, 44 samples required less than 12.5 c.c., varying in 32 samples from 12.48 to 12.00 c.c., and for the remaining 12 from 11.93 to 11.45 c.c. (*Ztschr. anal. Chem.*, **28**, *175–183.*)

J. F. G.

Free Fatty Acids in Oils. HUGO NOERDLINGER.

The free fatty acids in various "salad" oils varies from 0.47 to 5.75%. The average quantity for the different varieties does not exceed 1–2%:

"Salad"	Rapeseed oil	1.19%
"	Poppy oil	1.92%
"	Earthnut oil	1.94%
"	Sesamé oil	1.97%
"	Olive oil	1.69%
	General average	1.74%

Good oils for salad purposes ought not to exceed the above averages.

To determine the free fatty acids dissolve the oil in a mixture of ether-alcohol containing phenolphthalein and titrate with $\frac{N}{10}$ alkali. (*Ztschr. anal. Chem.*, **28**, *182.*) J. F. G.

Analysis of Commercial Peptones. J. KÖNIG AND W. KISCH.

The data for valuation are the determination of the per cent. of water, the different mineral constituents, soluble and insoluble albumen, per cent. of fat, and differentiation of the albuminoid constituents. The authors used the following methods: 5–10 grms. of the peptone are dissolved in water, filtered, the residue is collected on a filter and dried and the N is determined in the residue and filter by the Kjeldahl method. Per cent. $N \times 6.25$ = insoluble albumen. The filtrate from the above acidulated with acetic acid and boiled. Any precipitate is collected and its N determined as above. Per cent. $N \times 6.25$ = soluble albumen. For the fat, 10 to 20 grms. of the peptone preparation are mixed with a sufficient quantity of sand, dried and exhausted with ether. To differentiate between the albuminoid bodies the authors recommend precipitation by $(NH_4)_2SO_4$ solution instead of ferric acetate.

The filtrates from the soluble and insoluble albumen—(take originally 5 grms. for solid, 10 grms. for syrupy and 20 grms. for liquid

peptone preparation)—dilute to 500 c.c. (A) and take, according to quantity of solids, 50–100 c.c., concentrate to 10 c.c. and precipitate the same with 100 c.c. of saturated solution of ammonium sulphate in the cold. After settling, collect the precipitate on a weighed dry filter, wash with saturated solution of ammonium sulphate, dry and weigh. Dissolve the contents of the filter in water, dilute to 500 c.c.; determine the SO_3 in 100 c.c., after acidulating with HCl, by $BaCl_2$, and calculate to ammonium sulphate, $(NH_4)_2\ SO_4$. Deduct the result from the increased weight of the filter—the difference being the per cent. of albuminous constituents.

Of solution (A) above, take 50 c.c. to 100 c.c., acidulate strongly with sulphuric acid and then precipitate by additions of solution of sodium phospho-tungstate (3 parts of the acid sodium phospho-tungstate solution to 1 part of dilute sulphuric acid) until no more precipitate forms, filter, wash with dilute sulphuric acid (1:3), and while still moist, transfer the washed filter and contents to a flask, and determine the nitrogen by the Kjeldahl method. $N \times 6.25$ = albumens + peptone. Deducting that found by the $(NH_4)_2SO_4$ precipitation = peptone. The precipitation by the ferric acetate, etc., method may yield a higher percentage of peptones, but the $(NH_4)_2SO_4$ method is considered to yield the more accurate results. (*Ztschr. anal. Chem.*, **28**, *p. 191–201.*)

J. F. G.