

coagulum, ferment-bodies, and columnar, four or six-sided (sometimes also star-shaped) crystals.

3. 10 c. c. of the filtered solution, prepared as just stated, are placed into a test-tube, 1.5 cm. (= 5-16 inch) wide, and mixed with 10 cc. of an aqueous cold saturated solution of picric acid. In the case of good extracts, a strong cloudiness appears at once, which gradually increases, and after ten minutes has become so intense as to prevent the passage of daylight through the liquid. The adulterated sample (X) showed only a slight cloudiness with picric acid, nor did it after ten minutes become so intense as to be impervious to light.

If it is desired to determine the quantity of the protein compounds in solution, 10 gms. of the extract are digested for half an hour at a gentle heat in 100 gms. of cold saturated aqueous solution of picric acid, and the whole set aside to allow the precipitate to deposit. The latter is collected in a tarred filter, washed and dried in the water-bath. Its weight, divided by 2, is approximately equal to the quantity of the proteides.

4. Another portion of the filtered 10 per cent. solution is mixed with tincture of galls in excess, and well shaken. A copious whitish precipitate, remaining suspended in the liquid, and making it impervious to light, must make its appearance. Sample X gave only a slight cloudiness.

The same relationship which exists between pepsin and febrin, or other animal protein-compounds, holds good between the diastase of extract of malt and vegetable-starches. The latter, which form a main constituent of our vegetable diet, are converted by diastase into dextrin. Extract of malt, therefore, owing to its proteides and to diastase, is an excellent adjunct in the nutrition of infants.

Various other remedies have been combined with the extract of malt, to modify its action, or it is used as a pleasant disguise for disagreeable medicines. But since those agents which are capable of arresting or preventing fermentation would exert the same influence upon the diastase, and consequently would prevent the latter from acting upon starch, they should not be given in combination with malt extract, or at least only in very small quantities. Tannic acid, salts of quinine, salts of iron, (ferric) with organic acids, and potassium iodide should be given in comparatively large quantities of the extract. Hager mentions the following compounds or preparations as in use in Germany.\*

*Extractum malti chininatum* (or *quinatuus*), *Malt extract with quinia*, was formerly prepared by adding 1 part of quinia sulphate to 250 parts of the extract; but the bitterness of the mixture caused it to be frequently rejected by children. At present the usual method

\*A number of preparations, besides those enumerated above, are in use in the United States.