

it did not glisten or makes its appearance in spangles. I have found, however, that this peculiarity of the precipitate is destroyed by the presence of mere traces of metaphosphate."

The *News and Courier* comments on this as follows:

"It is a great pity of course, that the precipitate of luteocobaltic chloride does not glisten or appear in spangles, but a little ground mica will supply this feature and give the oat-field a holiday appearance when the grain is sown broadcast. For ourselves we prefer the molybdic solution, after the removal of ortho- and pyrophosphoric acid, for red oats, but we would not insist it is better than pyrophosphoric acid, if the latter is carefully treated with luteocobaltic chloride that has self been dialysed in potassium nitrate."

MIXED FERTILISERS

ANS.—1. W. S. Powell & Co., Baltimore, Md., sell chemicals. 2. This mixture would make a complete fertiliser for corn or any other crop. It might not do so well, however, as one in which there were different forms of nitrogen and soluble phosphoric acid. The average composition of the chemicals named is: Nitrate of soda 16 per cent nitrogen; ground bone, 20 per cent phosphoric acid; muriate of potash, 50 per cent potash. A standard fertiliser for corn should contain about 75 pounds of nitrogen, 200 of phosphoric acid and 130 of potash to the ton. A mixture of 300 pounds of nitrate of soda, 1,000 of ground bone, and 300 of potash, or 1,600 pounds in all, will give more nitrogen and potash than is found in the ton of prepared fertiliser, and the same amount of phosphoric acid. The difference is that none of the phosphoric acid in the bone is soluble in water, while 130 pounds of that in the special fertiliser are available because a superphosphate was used. The cost of the above mixture at present retail prices would be not far from \$35. Here are two "home mixtures" made by Connecticut farmers for special use on the corn crop:

No. 1.	Pounds.
Bone.....	500
Muriate of potash.....	200
Dissolved bone black.....	600
Tankage.....	500
Nitrate of soda.....	200
	2,000
No. 2.	Pounds.
Castor pomace.....	800
Tankage.....	900
Muriate of potash.....	200
Dissolved bone.....	100
Nitrate of soda.....	100
Plaster.....	100
	2,200

Careful analyses showed the following composition for these mixtures in pounds per ton:

	Nitrogen.	Potash.	Phosphoric acid.
No. 1.....	85	108	290
No. 2.....	108	110	150

No. 1 cost \$35.06 per ton delivered. The cost of No. 2 was not estimated. These mixtures were made with special reference to what those particular soils were thought to need. The soils had first been tested with chemicals in combination and alone until it became evident that the soil of No 2 needed

more nitrogen and less phosphoric acid than that of No. 1, and the mixtures were made up on that basis. The great objects of home mixing are to avoid buying unnecessary quantities of nitrogen, potash or phosphoric acid, and to know that the forms in which these substances are supplied are suitable. Better try high-grade manufactured goods than to "home mix" at random without having first tested the soil for an idea of what it really needs. Raw ground bone is seldom used in the home mixtures, dissolved bone black or some other form of superphosphate gives a better result.

R. N. Yorker.

COTTON-SEED MEAL FOR POTATO FERTILISER.

C. U. V. B. Beaufert, S. C.—What is the cheapest fertiliser for Irish potatoes? Will not Peter Cooper's bone, sulphate of potash, and cotton-seed or cotton-seed meal be the cheapest forms? Delivered here cotton seed meal costs \$24 per ton; Peter Cooper's bone, \$26, and cotton seed, \$10. About sulphate of potash I have no information; what is its price, and the address of a firm from which I can purchase?

ANS.—The value of the cotton-seed meal will depend upon its analysis. For instance: take these two samples analysed at the Connecticut station,

	Cost.	Nitrogen.	P. acid.	Potash
No. 1...	24.50	4.23	1.83	1.49
No. 2...	27.00	7.56	3.26	2.00

No 1 was not thoroughly "decorticated;" so that more or less hulls were ground with the seed. Allowing the ordinary prices for potash and phosphoric acid, a pound of nitrogen in No. 1 cost 24 cents. Figuring the same way, a pound of it in No. 2 cost only 13.4 cents, though the price per ton was \$2.50 more than that of the other. This is a good illustration of the necessity of buying fertilising substances on an analysis. It also shows the impossibility of giving an accurate statement as to the composition of a mixture containing cotton seed meal. We have had no experience with whole cotton seed as a fertilizer for potatoes, but should suppose it contains too much fat and oil for that crop. Taking the average composition of cotton-seed meal, bone and sulphate of potash, 1,200 pounds of the meal, 600 of bone and 300 of sulphate of potash will give an analysis much like that of a high-grade potato fertiliser, except that the mixture contains an excess of phosphoric acid. A better combination could be made up by using some nitrate of soda and superphosphate.

R. N. Yorker.

The Household.

HOME-MADE RELISHES FOR BREAKFAST OR LUNCHEON

UNDER this heading an almost endless variety of little delicacies, of a light, appetising nature, may very properly be included, but amongst the number there are a few items to which I should like to call special attention, namely, potted meats and fish of various kinds, and savoury pastes. These little dainties are so extremely

simple in their preparation that the trouble involved is really not worth mentioning, and they are decidedly economical too, as they provide an excellent opportunity for the using up of odds and ends which, otherwise, would in all probability be just wasted; besides which, they form a most popular and highly-esteemed relish, especially welcome during the present season, when one seems to need some such tempting little tit-bit in order to coax and stimulate one's appetite. I have great pleasure, therefore, in giving below some good and reliable recipes for the making of these little savouries, which I hope may prove useful and satisfactory to my readers.

POTTED BEEF AND HAM.—Take, say, half-a-pound of cold roast beef, carefully freed from all skin and gristle, and 6 oz. of lean cooked ham, and after mincing these together very finely, put them into a mortar with 2 oz. of stewed mushrooms, 4 oz. of pure fresh butter, and a good high seasoning of salt, cayenne, made mustard, and mixed herb powder, and pound the whole to a perfectly smooth paste; moisten this with a well-beaten fresh egg and a small teaspoonful of rich brown stock, and mix thoroughly; then press the mixture into small neat jars, cover the tops with buttered paper, and poach gently for half an hour in boiling water, taking care, of course, that the latter does not quite reach to the height of the jars. When sufficiently done take them up, pour over the surface a little clarified butter or melted mutton fat, and set them in a cool dry place until required; then serve as fancy dictates—as a savoury to be spread upon bread-and butter, or in the form of sandwiches, dainty croûtons, &c.

POTTED CHICKEN AND TONGUE.—Take equal weights of cold cooked chicken either roast or boiled, and cooked ox tongue, and first mince finely, then pound separately, until each meat forms a nice smooth paste; supposing there is ½ lb. each of chicken and of tongue, add to each 3 oz. of good fresh butter, and a pleasant and sufficient seasoning of salt, pepper, made mustard, and powdered mace. Then mix thoroughly, and press the meat firmly into small, very liberally-buttered jars, arranging it in alternate layers of red and white, so as to give a pretty effect when the paste is cut into. If intended for serving next day, there is no necessity to cover the tops of the jars over with fat of any kind, but just set them in a cool place overnight; then, when required turn out on to a dainty little dish-paper; garnish tastefully with sprigs of parsley and slices of fresh lemon and serve.

POTTED LOBSTER.—Choose a medium-sized hen lobster, that has been just freshly boiled, and carefully pick out every scrap of the meat. Put this into a mortar, or a strong basin, with the coral, a teaspoonful of anchovy essence, a seasoning of salt, cayenne, and nutmeg, and 4 oz. of fresh butter, and pound the whole until thoroughly blended and quite smooth; then press into small jars, cover the top, or not, according to discretion, with cool clarified butter. Or, if preferred, pound only the white part of the meat, and cut the red portion into small neat dice, then mix lightly together, place in jars or pots, as already directed, and serve, whenever required, as tastefully as possible.

POTTED BLOATERS.—Procure half-a-dozen freshly-cured prime Yarmouth bloaters and immerse them in boiling

water, then carefully remove the skins and as many of the bones as possible, and put the fish into a stowpan with 4 oz. of butter, a seasoning of mace and cayenne; and a teaspoonful of anchovy essence, and stir all together over a moderate fire for about ten minutes; then rub the preparation through a sieve, press it into small jars, cover the tops with cool clarified butter, and store for use.

SHRIMP PASTE.—Take the requisite quantity of fine, freshly boiled shrimps, and after shelling them carefully put them into a mortar with one-third their weight in fresh butter, a pleasant seasoning of salt, white pepper and mace, and a few drops of cochineal or carmine, and pound the whole very smoothly then finish off as already directed.

NOTE.—Prawns and crayfish may be treated in exactly the same manner, and will be found most delightful, while sardines, anchovies, and the remains of almost any kind of cooked fish can be utilised in a similar fashion, only omitting the colouring.

EGG PASTE.—Boil six fresh eggs for ten minutes, then remove the shells, take out the yolks, and put them in a basin with 4 oz. of fresh butter, a good seasoning of salt, pepper and mustard, and chop the egg whites into very tiny dice; pound the yolks, &c. to a fine smooth paste, then add the chopped whites, and mix together lightly, when the paste is ready for potting. If ½ oz. of prime cooked ham is finely chopped and pounded with the egg yolks, the preparation will be all the more delicious, only it should then be called "Egg and Ham Paste."

CHEESE PASTE.—This is a truly delightful relish for luncheon, with gentlemen more especially, and if nicely prepared and closely covered it will keep for two or three weeks. Take three-quarters of a pound of rich cheese—no matter how dry or how small the pieces—and put it into a mortar with 6 oz. of pure fresh butter, a plentiful seasoning of mustard and cayenne, and pound briskly until the ingredients form a well-blended, smooth, creamy paste, then finish off and store in the usual way, and use as required. If only a small quantity of the paste is being made for immediate use, a tiny bit of boiled onion, very finely minced, may be added and will add considerably to the piquant flavour of the relish, but this ingredient must never be introduced when the paste is intended to be kept for any length of time. MARIÉ.

THE shrewd and practical editor of the *Maine Farmer* strikes a neglected chord, when he says to his readers that the live-stock literature of the last two decades has been mainly devoted to educating the public up to an appreciation of the fact that "blood will tell," and now, without receding a particle from what has been gained in that direction, it is high time that the other end of the line should be brought up, so that the general farmer and every-body else may understand how important a part the feeder's art has played in the creation of what is popularly termed "good blood," and how important a part it must continue to play in perpetuating good blood.