The appliances required for making a salt test are:—

(*a*) a scale for weighing a ten (10) gram sample of butter. The moisture scale is used for this purpose;
(*b*) a cylindrical measuring glass about one and one-half (1½) inches in diameter and twelve (12) inches high, graduated to hold two hundred and fifty (250) cubic centimetres;
(*c*) a 17·6 c.c. pipette;
(*d*) a small glass breaker;
(*e*) a ten (10) cubic centimetre burette with glass stop-cock graduated to one-tenth (1/10) of one (1) cubic centimetres and clamp for holding the burette;
(*f*) a dropper bottle for the potassium chromate indicator;
(*g*) a one-pint wide mouth glass bottle.

Making the Test.

A sample of butter is secured and prepared for testing in the same manner as for a moisture test. The scale is balanced with a small piece of parchment paper on the pan and ten (10) grams of the prepared sample weighed out on the paper. The paper and butter are transferred to the pint bottle and two hundred and fifty (250) cubic centimetres of water (preferably soft) at a temperature of 110° F. to 120° F. measured in the graduate and added to the bottle containing the butter. The bottle is thoroughly shaken to melt the butter and wash out the salt. After allowing the bottle to stand a few minutes, it is again shaken to ensure an even distribution of the salt throughout the water. The bottle is then allowed to stand until the fat comes to the surface. The 17·6 c.c. pipette is inserted into the solution of salt, blowing through the pipette until the end of the pipette is below the surface of the water to prevent the liquid fat rising into the pipette. The pipette is filled to the graduation mark with the salt solution and this quantity is transferred to the beaker. To the salt solution in the beaker is added one drop of the potassium chromate solution from the dropper bottle. The burette is filled to the top of the scale with the silver nitrate solution, care being taken that no air bubbles remain in the tip of the burette. The silver nitrate solution is now slowly dropped from the burette into the beaker, which is shaken constantly to mix the silver nitrate solution with the salt solution. As soon as a permanent faint reddish-brown colour is obtained, the addition of the silver nitrate solution should cease as the salt is all neutralized. The number of cubic centimetres of silver nitrate solution required to neutralize the salt is read from the burette. Each cubic centimetre of solution used represents one per cent of salt in the butter. Thus if two and nine-tenths (2·9) cubic centimetres of solution are used, the butter contains two and nine-tenths (2·9) per cent of salt.

Nearly all well waters contain more or less salt and for this reason are not suitable for use in making the silver nitrate solution. Condensed steam from a boiler also contains impurities which render it unfit for use for this purpose. Clean rain water will give more satisfactory results than either well water or condensed steam from a boiler.

If well water is used to remove the salt from the butter in making the test, it should be tested for salt in the same manner as the salt solution from the butter is tested. Whatever percentage of salt is present in the well water should be deducted from the result of the test of the butter. For example, if the well water shows 0·5 per cent of salt and the butter shows 3·5 per cent of salt, the correct test of the butter is 3·5 — 0·5 per cent = 3·0 per cent since 0·5 per cent of salt has been added with the water. Condensed steam from a boiler should not be used at all in making the test. Well water to be mixed with the sample of butter should not even be heated by turning live steam into it. The well water may be conveniently heated by surrounding a small pail or jar of the well water with the hot water.