

outlined in the study of solubility. The method of procedure was as follows: The meal was stirred into boiling water and the boiling continued vigorously for twenty minutes. A sample of the "porridge" was then taken out for examination and the remainder was placed in a double boiler and the cooking continued for eight hours at a lower temperature. At the two, five, and eight hour periods, a portion of the material was removed and used in determining soluble matter. The percentage soluble was calculated from the dry matter determined in a part of the sample similar to that extracted. No attempt was made to study exhaustively the nature of the changes produced by the cooking, but it was thought that a statement of the amount of soluble matter and the amount of crude dextrin, as stated in Table No. 5, alcohol precipitate, and the amount of sugar, or reducing materials, would give some indication of the nature and the extent of the changes the starch had undergone during the cooking process. The solubility of the proteids was also determined to ascertain what influence the long and short cooking had on these substances. The results form Table No. 5:

TABLE NO. 5: INFLUENCE OF COOKING ON THE SOLUBILITY OF FOODS.
Percentage composition of Water Extract.

Name of Food.	Time cooked.	Solids.	Alcohol Precipitate. (dextrin.)	Cuprous oxide precipitate. (sugar.)	Soluble Proteids.
Rolled Oats.....	Uncooked	8.43	2.36	none	.86*
	20 minutes	14.95	3.36	"	0.89
	2 hours	18.79	4.49	"	1.57
	5 "	20.93	6.92	"	2.28
	8 "	34.30	8.77	"	3.39
Wheat Farina.....	Uncooked	6.97	trace	trace	2.18
	20 minutes	27.40	6.87	"	0.26
	2 hours	37.19	12.8	"	0.42
	5 "	38.37		"	0.35
	8 "	39.99	15.1	"	0.65
Cornmeal.....	Uncooked				
	20 minutes	15.29	11.42	none	0.32
	2 hours	13.78	9.60	"	0.40
	5 "	13.25	10.03	"	0.47
	8 "	20.03	16.84	"	0.60

*No determination made.

The above results indicate very clearly the influence of long cooking on the solubility of the foods. Apparently the wheat farina does not require to be cooked so long as either the cornmeal or the rolled oats, and that the soluble matter in the cornmeal did not increase so rapidly with the longer period of cooking as it did in the other foods. The results of