ration are recommended by these investigators, a comparison is also given (Table II) of the percentage of

TABLE II

PERCENTAGE OF RATION

	O. and M.[1] per cent.	McC. No. 185[2] per cent.	H. and O.[3] per cent.	Suggested per cent.
Salt mixture	4.0	3.7	4.4	3.5
Na	0.137	0.126	0.134	0.145
K	0.737	0.427	0.721	0.533
Ca	0.496	0.256	0.489	0.500
Mg	0.064	0.054	0.0766	0.0636
Fe	0.0120	0.0243	0.0118	0.0129
Mn	0.000265		0.000258	0.000255
Cu				0.000348
Al	0.000013		0.000023	0.000018
PO_4	0.920	1.169	0.906	1.098
SO_4	0.083	0.212	0.135	0.251
Cl	0.478	0.105	0.468	0.423
F	0.00103		0.00101	0.000903
I	0.000144	*	0.000144	0.000134

* Iodine in drinking water.

the inorganic radicals in a diet prepared with the prescribed proportions of salt mixture to ration.

The suggested mixture has been used in essentially the present form for several years in this laboratory. Copper has added recently in accordance with the findings of Waddell, Steenbock and Hart[4] and Elvehjem and Hart.[5]

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A NEW KAHN ANTIGEN MIXER

THE proper mixing of the Kahn antigen with salt solution in order to obtain a stable and uniform emulsion is still something of a problem, notwithstanding the improved mixers available on the market.

In this laboratory and in that of Agnew State Hospital we have used a mixer which possesses definite advantages over all others and which is inexpensive to make. It is nothing more than a Hatschek emulsifier in miniature. Its operation is simple.

[4] J. Waddell, H. Steenbock and E. B. Hart, *J. Biol. Chem.*, 84, 115, 1929.

[5] C. A. Elvehjem and E. B. Hart, *J. Biol. Chem.*, 84, 131, 1929.

The materials used are as follows:

(1) A specimen vial ¾ inch inside diam. by 2¾ inches long.

(2) 1 rubber stopper No. 3 with 2 holes.

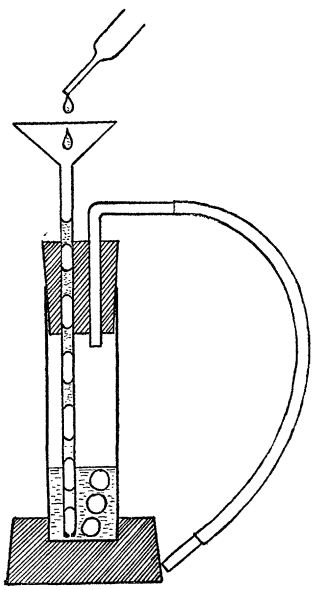
(3) A 1 inch funnel with a stem 4 inches long.

(4) A 1½ inch right angle glass tube, ⅛ inch inside diam.

(5) A piece of rubber tubing 9 inches long by ⅜ inch diam. with glass tubing mouth-piece.

The end of the funnel is heated until the hole is ½ mm. in diameter. When inserted through the rubber stopper and the vial closed the funnel stem should almost touch the bottom. For greater stability the base of the vial can be held in a No. 9 rubber stopper.

The antigen is put into the vial first. After the stopper is replaced, gentle suction by mouth or otherwise is applied by means of the rubber tube connected with the right angle glass tube. This causes bubbling



through the antigen. Now the salt solution is poured into the funnel one drop at a time—say 2 or 3 drops per second. The entrapped air between the drops does the mixing of the salt solution with the antigen in the vial. If mechanical suction is used and also a dropping funnel it is possible to reproduce the mixing exactly each time and standardize the emulsion with great accuracy; something almost impossible with the mixers in general use. Since this mixer has been in use, a marked decrease in doubtful determinations has taken place.

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