

enough to climb mountains, swim rivers, fight hand-to-hand fights, and endure privations, unless his digestive organs had been fed with aliment which supplied the waste of tissue consequent upon exertion, and the withdrawal of the nerve force, vitality, or life, or whatever you are pleased to call that dynamic power which carries along the currents of our physical existence. In speaking of muscular actions we are apt to regard the muscles themselves as the sources of power. But if we should separate the nerves which connect the given muscle or set of muscles with the spinal or cranial system of nerve centres, it would be found that they would become as powerless for action as the engine when steam is cut off, or a machine when its connecting belt with the motor is slipped off. So that it is more in accordance with the facts to speak of the nerve force as the primal source of all the muscular forces of the body. In this light we cannot conceive of the Roman soldier as other than a person of immense nerve power. It might not have been an intellectual nerve power, but it must have been a neurotic power sufficient to wonderfully sustain and control the still more wonderful combination of mechanical forces found in the muscular system. It is very generally acknowledged by physiologists that there is more or less waste of nerve and muscular tissues during the exercise of the varied functions of the human body. No light is seen, no sound is heard, no touch is felt, no smell is perceived, respiration is not kept up, digestion, secretion, excretion, cerebration, phonation, and muscular movements are not performed, without a waste of the tissues which are the agents of the functions named. Now the Roman soldier must have had just this tissue destruction, and he must have had it supplied in his food, or else he would have broken down under such severe tests. History shows that he did not break down, and it is a very interesting question what he mainly subsisted upon. In looking over the list of the commissary department of the Roman army we do not find the modern diet table. *Fru-mentum*, grain or wheat, was the main article of diet. A bag of wheat was a regular part of the outfit. It was whole wheat, not flour. When the soldier was hungry all he had to do was to eat it by chewing it whole on the march; or at a halt, or in camp, soaking it in water, and then rubbing up with a stone, eat it either uncooked or boiled. Any of the animals he might chance to find were caught and appropriated as additional food, and were so much clear gain. There might be at stationary camps other articles of diet, but in the long run unbolted wheat was his principal food. This being the case, it is clear that open air life and wheat are, or were, the elements that can make a per-

fect physical organization. It is not here asserted that no other combination of fresh air and food does not furnish the same food data; but it is desired to emphasize that wheat has the undisputed character of a perfect food. Dr. Nichols, the editor of this journal, says he entertains the profoundest respect for a grain of wheat: 'It is a most marvellous combination of substances, admirably adapted for the building up and sustenance of the tissues of the human body.' It is emphatically the food of mankind. Its history is traced back to the earliest ages. It has been found buried with the mummies of Egypt. Our modern civilization has adopted it, or rather preparations from it. The raising of wheat and carrying it to market occupy the attention of large portions of the human race. Last year it took two hundred and twenty-five full-sized ships to carry the surplus crop of Californian wheat to the markets of the world. The manipulation and consumption of flour from wheat furnish employment for a much larger number of people than the producers and freighters; and, if we include those who eat the food prepared from wheat and wheat flour, there is hardly an individual in any civilized community throughout the world who does not come into the most intimate relations with bread, pies, cake, puddings, gruels, crackers, muffins, dumplings, etc., all derived from wheat. The consumption of flour as food being so universal and large, may we not be allowed to infer that the characteristics of the tissues of the bodies of our race must be determined in some measure by this flour? because these tissues are built up, nourished and sustained by the food which is consumed.

The old Roman soldier was a perfect animal in organization, and may we not deem it reasonable to conclude that his diet may have made him, or that he could not have attained his condition without his wheat or some other analogous grain? What diseases were prevalent among his comrades we know not, as no hospital records have been handed down to us. In the face of what we know and have already stated, may it not be admitted that generally he enjoyed good health? for no sick or diseased soldiers could have done the work that was accomplished.

Now, of what did his wheat food consist? From tables published in Johnson's 'How Crops Grow,'—a most interesting and valuable book, deserving a place in every library in the land,—we ascertain the following:—

Composition in 1000 parts of substance of

	Water.	Ash.	Potash.	Soda.	Magnesia.	Lime.
Wheat grain.....	143	17.7	5.9	0.6	2.5	0.6
Fine wheat flour.....	136	4.1	1.5	0.1	0.3	0.1

	Phosphoric Acid.	Sulphuric Acid.	Silica.	Sulphur.
Wheat grain ...	8.2	0.4	0.3	1.6
flour ....	2.1	0.0	0.0	0.0
Amount of starch in wheat.....	59.5 per cent.			
flour.....	63.7			
Albuminoids in wheat.....	13.			
flour.....	11.3			

It will be seen that there is a considerable withdrawal of mineral elements in flour, while the starch is about the same. The withdrawal of potash is 5.5—1.5= $\frac{1}{2}$ ; not quite  $\frac{1}{2}$ ; of soda, 0.6—0.1= $\frac{1}{10}$ ; of magnesia, 2.2—0.5= $\frac{1}{4}$ ; of lime, 0.6—0.1= $\frac{1}{10}$ , the same as of soda; of phosphoric acid, 8.2—2.1= $\frac{3}{4}$ , almost  $\frac{1}{2}$ .

Note that phosphorus or phosphoric acid is found largely in the albumen of the nervous tissues. It is also found in the bony tissues.

Chemical constitution of nerve (Vauquelin):—

Albumen.....	7.00
Fat.....	5.24
Phosphorus.....	1.50
Osmazone.....	1.12
Acids, salts, sulphur.....	5.15
Water.....	80.00

Albumen is found solid in nerves. Its composition, according to Scherer, is as follows:—

Carbon.....	54.0
Hydrogen.....	7.0
Nitrogen.....	15.0
Oxygen.....	12.4
Sulphur.....	22.4
Phosphoric acid.....	22.4

Here there is a withdrawal in flour of nearly seven-eighths of the proper nerve food found in the wheat, the main ration of the old Roman soldier. It is probably the soluble and assimilable form of phosphates, one that the digestive system can absorb and the nutritive system appropriate to its sustenance. Thus modern civilized mankind are generally living upon a food which is deprived of seven-eighths of its nerve producing, sustaining and corroborating element, *phosphoric acid*.

We raise the question seriously, Does the use of flour promote (that is, assist, predispose to) affections of the nervous system? Mark, we do not ask whether it is the sole exciting cause, but whether if mankind now received in its bread eight eighths of phosphoric acid instead of one-eighth there would not probably be less disease of the nervous system.

Eight-eighths were designed for man's use by the Creator. Eight-eighths gave the Roman soldier his nerve energy and muscle. Suppose he had had only flour bread, and got one eighth; would he not have sensibly suffered? Could he have carried his sixty pounds of baggage? Indeed, we find that the absence of what Cæsar calls *frumenta*, corn or grain (not our maize or Indian corn, which was then undiscovered) *par excellence*, or wheat, from their ration, was the cause of tumults, disturbances, and sometimes war. Suppose Cæsar had started a first-class modern flour mill, and separating almost