WATER PURIFICATION UNITS MOUNTED ON MOTOR TRUCKS*

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In every line of endeavor, the world war brought forth many novel developments, and although the water supply field was but one of the many, it is pleasing to present before this convention of water works men, a discussion of the units developed and manufactured by members of this association, to be operated in France, and elsewhere, by other members engaged in delivering safe water supplies to the allied military forces.

The portable, motor-truck-mounted, water-purification units about to be described, present nothing new in the fundamental principles of water purification, but show the applicability of the principles used in stationary domestic plants, to portable plants for military use.

In 1914, the necessity for a specially organized water service was not recognized by any of the allied forces, water supply functions being the duty of engineering troops. The purity of the water was determined by the medical department.

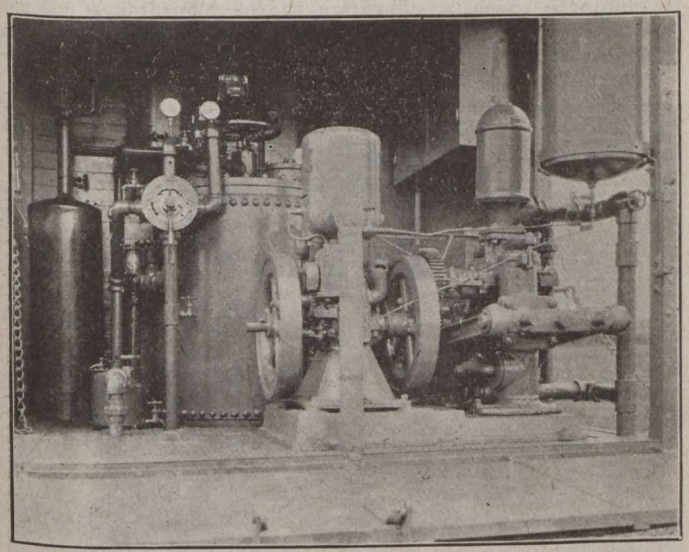

Fig. 1—Rear of Completed Truck, Showing Filters, Power Plant, Pump, etc.

The water supply conditions presented in France and in Belgium, and the problems of water supply met in trench warfare, were entirely different from problems presented in previous wars. The soils of Northern France and Belgium were for the most part highly cultivated, fertilized for scores of years with night soil and other refuse, so that water supplies normally obtained in the battle area were highly polluted. Then, too, the German forces, in passing over the country, indescribably polluted all water left behind when retreating, making special measures necessary for purification.

It is reliably reported that the 1915 Champaign campaign of the French army broke down largely due to inadequacy of water supply arrangements, and at the close of this campaign, the French war office organized a special water service for the Second French Army, under the direction of Major Bunau-Varilla, well-known through his endeavors to construct the Panama Canal with French financial support.

The chlorination of all water supplies used for drinking and cooking purposes, was required by the French military authorities. Calcium hypochlorite or sodium hypochlorite was applied in such quantities that fifteen minutes after treatment there remained two-tenths parts per million of residual chlorine.

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It should be pointed out that such excessive amounts of residual chlorine, greatly in excess of American practice, left objectionable tastes and odors in the treated water, so that the troops were apt to take the more palatable, but dangerous, untreated water from flowing streams, shell holes and the like, when possible.

The United States forces, in entering the conflict, taking advantage of the lessons learned by the allied forces, created a water supply regiment, the 26th Engineers, which was

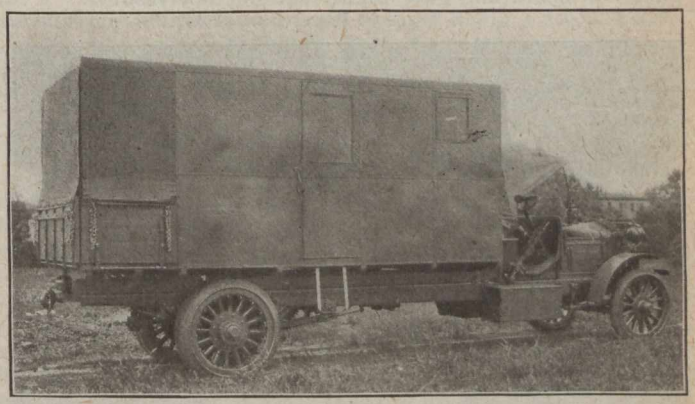

Fig. 2—Ready for a Long Journey

officered by experienced water works men, most of whom are members of the American Water Works Association. This regiment had charge of the water supply of the American Forces, both in the advanced area and in the rear.

Early in the war, the need for portable water wagons for the purification of supplies, was presented, and bulky equipment, with filters and devices for treating the water with hypochlorite, were put forth. In 1916, the availability of apparatus of American manufacture to control liquid

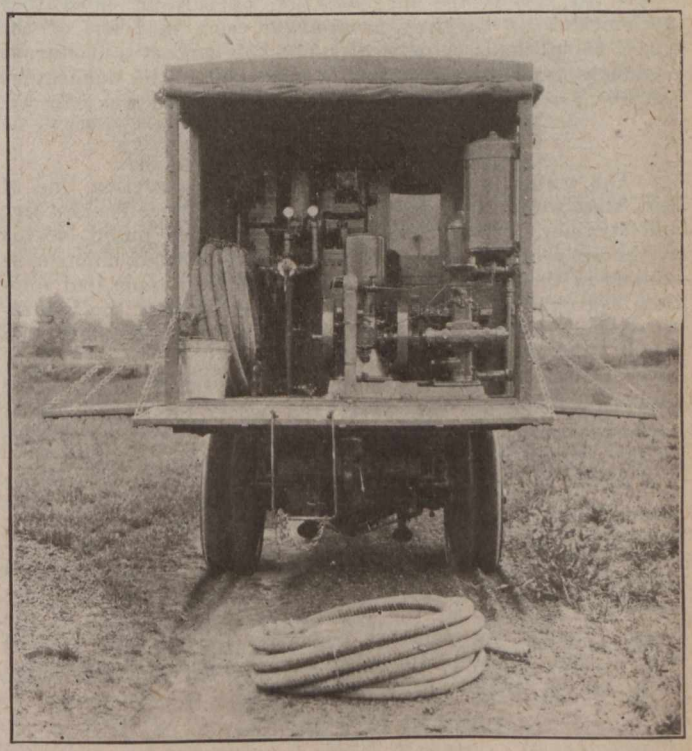

Fig. 3—End and Side Gates Down, Ready for Operation

chlorine made possible the first efficient motor-truck-mounted, water-purification unit.

Experience had been gained by the Wallace & Tiernan Co. through co-operation with its British house in the construction of equipment for the British forces. Equipment based on the British unit was constructed and tested under varying conditions at Maplewood, N.J. Water was taken