B.- O R G A N I Z A T I O N.

Personnel and Materiel.

The memorandum on the "Combat Tank Service" was approved by the Commander-in-Chief September 23. 1917. The following is a proposed organization following almost exactly the lines therein laid down but with some slight modifications.

The highest tactical and administrative unit should be a battalion of three companies with a repair unit and perhaps an attached transport truck company.

The platoon consists of the following personnel:

1 lieutenant, chief of platoon,
2 sergeants, six-pounder guns,
2 corporals, machine guns,
5 privates, first class, drivers,
5 privates, helpers,
1 mechanic
Total 1 officer, 15 men.

Materiel:

1 tank, three-inch gun,
2 tanks, six-pounder guns,
2 tanks, machine guns.
Total 5 tanks

Company consists of three platoons and company headquarters.

Personnel company headquarters:

1 captain,
1 lieutenant, reconnaissance and ordnance officer,
1 first sergeant,
1 supply sergeant,
1 mess sergeant,
1 signal sergeant,
1 corporal, clerk,
10 privates, first class, drivers,
20 privates, helpers,
1 mechanic,
2 motorcyclists,
10 chauffeurs, 9 for trucks and 1 for automobile,
3 cooks.
Total 2 officers, 51 men.

Materiel for company headquarters:

1 tank, signal,
1 tank, commanding officer's,
8 tanks, supply, training and reserve,
5 trucks, ammunition,
2 trucks, gas and oil,
1 truck with trailer, baggage,
1 truck, kitchen, with rolling kitchen trailer,
1 automobile (Ford)
2 motorcycles

Total personnel for company 5 officers, 96 men; materiel 25 tanks, 12 vehicles.

Battalion consists of three complete company units plus battalion headquarters and repair unit.

Personnel battalion headquarters:

1 major, commanding,
1 lieutenant, adjutant,
1 lieutenant, quartermaster,
1 sergeant major,
1 sergeant, quartermaster,
1 sergeant, signal,
2 corporals, tank drivers,
20 privates, helpers,
10 mechanics (6 regular mechanics,
2 blacksmiths, 2 welders),
2 motorcyclists,
4 chauffeurs (3 for truck, 1 for automobile),
2 cooks.
Total 3 officers, 43 men.

Materiel:

1 tank, major's,
1 tank, signal,
1 five-ton machine truck, with trailer,
2 five-ton trucks, with trailers,
to carry spare parts,
1 automobile,
2 motorcycles
Total 2 tanks, 6 vehicles.

Total for battalion: personnel 18 officers, 331 men; materiel 77 tanks, 42 vehicles.

It is thought that a solution of the general problem of arranging a battalion will be to place all the supply trucks with the battalion headquarters; that is, the 5 ammunition trucks and 2 gas and oil trucks from each company, making a total of 21 trucks with battalion headquarters, and leaving with each company the baggage truck and the kitchen truck. With this organization it will be possible to detach a company for some special tactical reason and to send with it the 9 trucks carrying all its ammunition, gas and other supplies. When much work is to be done at the battalion repair shops the 12 mechanics of the three companies could all assist with the work there. At other times they should be retained with the company to tune up and work on the tanks pertaining to each company. In addition to the battalion repair unit to be described later there must be a large repair shop at some permanent or semi-permanent center, where badly damaged tanks or automobiles could be sent for repair and where motors in need of thorough overhauling could be shipped. Such motors should be replaced by an adjusted motor shipped at once from the center to the unit sending the old motor for repair.

It is believed that this system with only two repair units -- that of the battalion and that of the center -- is better than the French system. The French have a company repair unit, a battalion repair unit and a unit at the center. The French battalion repair unit can do heavier work than will be possible for the proposed battalion repair unit in this report, but it is thought that work too heavy to be carried on by the proposed battalion unit

had better be done at the center.

The attached table shows the proposed organization for a battalion, both personnel and materiel.

The problem of giving adequate mobility to the battalion as organized above can be dealt with in three ways. The first is by having an attached carrier company of 77 trucks, each capable of pulling a tank by trailer or of carrying it loaded. This method would give absolute mobility, for with such an amount of transport it would be possible to move every unit of the battalion at one time in one trip. When for any reason a battalion should remain stationary this transport company could be used for other duties or could be attached to some battalion in progress of movement. The objection to detaching such trucks for other duties would be that the organization would be broken up and the trucks might not be on hand at the time they were wanted.

The second method of handling the problem would be to have the attached carrier company consist of 27 large specially built trucks, each capable of carrying one tank and pulling a second by trailer. This method would reduce the number of trucks necessary and the consequent cost, but a truck capable of carrying one tank and pulling another would have to be of special manufacture. Also the mobility would be very much reduced, as trucks with such a load could only work on the best roads. By this second method all the 53 fighting tanks and one reserve tank of a battalion could be moved in two trips, while by utilizing the two spare parts trucks and the battalion supply train sufficient gas, oil and

ammunition for one day's fighting could be moved in two trips.

The third method is to have the 27 transport trucks attached to each battalion as per table herewith consist of short couple trucks like the Knox or Hewiet. This type of truck carries no load and is simply four wheels with a motor. The load is carried on a trailer and traction to the driving wheels of the truck is given by the weight of the trailer. By having each of these trucks supplied with a trailer capable of carrying either a tank or an ordinary load of gas, ammunition or baggage it would be possible to transport all the fighting tanks and one reserve tank and all the ammunition in two round trips, as in the second case, leaving only the reserve tanks to be carried on a third trip.

Of these methods the first is best from a purely tactical standpoint, as it insures absolute mobility to the entire battalion. The third method is best when we consider the cost and the tonnage problem which confronts our army, and it is believed that it gives sufficient mobility for almost any action on the probable length of front to be occupied by American troops. The attached memorandum on the comparative value of trucks should be considered in connection with the foregoing.

Maintenance.

The following is a list of the materiel to be carried by each tank; also a list of the materiel to be carried by the three trucks of the battalion repair unit (machine truck with trailer and two spare parts trucks with trailers).