

tween the army and its base. Moreover, half of the load carried by animal-drawn army transports is a "non-paying" load, as it is food for the motive power—the mules; the efficiency is very low and the speed but a third that of motor transports.

The number of wounded in the present war is reported to be unexpectedly great, due to small-calibred, high-penetrating-power steel bullets; hence the carrying of wounded to hospitals in motor ambulances to save time and lives and to pick up the wounded rapidly is as important as motor supply trains. The usual form of motor ambulance in the service of both the French and German armies is in general appearance similar to the now more or less familiar automobile ambulances of city civilian service. Inasmuch as they are expected to do cross-country work, they are usually modified or standard passenger-car chassis of larger wheel base, arranged with stretchers in decks along the sides, and collapsible, removable seats for the less severely wounded. A number of army motor ambulances are, however, mounted on truck chassis and are veritable modern travelling hospitals, as for example, the Boulant type (named for its originator) field hospital of the French army. The body of this moving hospital (which, though of restricted capacity, adequately meets the surgeons' requirements) consists of three compartments—the forward one containing electrical apparatus, the middle one an operating room, and the rear division radium and X-ray equipment. The wide compartment bodies mounted on long-wheel-base chassis are lighted by roof windows and dome lights, with space enough in the operating room for tables, stands, and other absolute essentials. Electrical sterilizers in the front compartment sterilize 15,000 liters of water in 24 hours by the use of ultra-violet rays. Fitted alongside of the body are folding tents for hospital service, the interior of course, being too small to keep the patient permanently there. These Boulant field motor-hospitals are accompanying the troops in service, or are stationed at temporary convenient points. When mobile they can travel at a speed of 18 miles per hour. The number of these Boulant hospitals is small, however, and even the large number of standard motor ambulances are inadequate, so passenger cars and motor omnibuses of large carrying capacity are being requisitioned. When the veil of censorship is lifted and we get a detailed report of the frightful conflicts, the motor-vehicles' service in saving the lives of thousands of wounded will be a bright and comforting commentary.

In the aviation corps of the armies a two-wheeled trailer on which is mounted a canvas-covered frame constituting a portable hangar for aeroplanes is being pulled by a light truck at a speed of 18-25 miles per hour. These trucks carry, in addition to the renewal parts for themselves, extra parts for the aeroplanes, motor fuel, etc., and when a number are concentrated in one zone or section they are maintained in fit operating condition by a motor aeroplane-repair shop, consisting of a large, wide-bodied motor truck fitted up with an assortment of machine tools, small lathes, drills, a small forge and anvil, with tools power-driven by the truck's own engines through small electric motors. Skilled mechanics qualified to do repairs and adjustments on aeroplanes and motor vehicles accompany these ingenious portable machine shops. The French and German infantry are also equipped with a number of aeroplane destroyers, which are light, swift, armored motor trucks with superposed rapid-firing guns of 7-mile range, shooting a projectile of special type of 4.1 kilogrammes weight with a muzzle velocity of 670 meters and 93.8 meter-tons energy equivalent.

Mounted in roofless steel towers and with a 45 degree inclination of muzzle of these aeroplane-destroying guns, the projectile has an ascent of 3,700 meters; with 75 degrees angle, 7,910 meters. The turret walls are such as to give a sweep of the gun a considerable distance above. Sighting of the gun is effected by means of a hand wheel working free of the pointing angle and the angle of the earth, final aiming being made by telescope with rigid eye-glass. Twisting reaction is arrested automatically. Armor plate protects gun and operator from light projectiles, as well as the vital mechanism of chassis and projectile receptacles along the sides of the truck.

Armored motor trucks operating both on railways by means of special flanged wheels and in regular manner, equipped with mitrailleuse, machine, and other forms of light guns or loopholes for sharpshooters, are being used to harass advance forces or cavalry. In addition, many hundreds of motorcycles carrying small quick-firing guns are being used to disperse advance scouts.

Quick and efficient communication between the tremendous forces of combatants with battle fronts of 50 to 250 miles is no longer possible by scouts, couriers, and heliographic devices. The long-range combat with terrible engines of destruction means radio or wireless communication, and every one of the Powers now at war is employing portable wireless telegraph plants carried on motor-truck chassis geared for speeds of 25 to 35 miles per hour. The truck motor drives an electrical dynamo which generates the primary current of the high-tension transformer necessary in radio transmission, and the complete paraphernalia of condensers, interrupters, collapsible antennæ, etc., are carried on the truck which is generally fitted with a protecting shield for the driver, and a special convertible body with sliding panelled sides which can be tightly closed in stormy weather. These motor-truck wireless outfits having an effective land range of 200 to 300 miles have enabled the armies of the "Dual Alliance" and the Triple Entente to keep in communication with their base, wings, and reinforcements—a task impossible in modern warfare without the radio telegraph and—most important—the motor truck on which to move swiftly the instruments and their relatively large space-requiring auxiliaries from position to position.

Numerous motor-searchlight outfits are being used by the armies of both sides. Like the wireless field outfits, the engine of the motor truck on which they are carried generates the electrical current for their operation. The searchlight is mounted on a four-wheel platform truck with rubber-tired wheels, which enable the auxiliary searchlight truck to be quickly and easily demounted and remounted and drawn independently by men or horses if required, and enable the motor truck to be utilized for other purposes. These portable searchlights, being thus self-contained, independent power plants, have permitted the dreadful night battles of which censors have undeleted enough to let our imagination portray in part the horror. These portable searchlights and their allied motorized aerial observation ladders have indirectly served as terrible allies of death and destruction. The aerial observation ladders are carried on long-wheel-base fast motor trucks and in general appearance are like the motorized hook and ladder outfits of modernized city fire departments.

The supplying of ammunition to the armies of 15,000,000 men now, or that probably will be, participating, will be a gigantic task—a task in feeding thousands of machine guns that use cartridges at 400 per minute, second to feeding the prodigious troops. Only bigger-capacity motor trucks moving 3 to 4 times faster than horse-drawn ammunition wagons can be equal to the task.