VALUABLE HINTS ON AMBULANCE CONSTRUCTION

Expert Bases Suggestions on Conditions as Found on the West Front

Suggestions of interest with reference to the design of ambulances capable of performing heavy duty in war are given by Thomas & Thomas, Detroit consulting automotive engineers. Basing his recommendations on a study of the question while on the western front, Mr. Thomas says:

"Ambulances are for the most part on long frame, specially built touring car chassis. The bodies are eight feet long and must not overhang the rear axles more than one third of their length. To accomplish this, a wheelbase of about 145 inches is necessary. The bodies carry two drivers, an attendant and four stretcher patients or eight sitting patients. With sitting patients one-third of the weight of the patients and the three men is distributed between the two axles; the other two-thirds of the weight of the patients is balanced directly over the rear axle. This is equivalent to more than the weight of eight men and their equipment, or a load of over 1600 pounds directly over the rear axle, exclusive of the body weight.

"Ambulance rear axles, springs and tires had had to be made more liberal to stand this load. They are mostly fitted with dual pneumatic rear tires on account of this. Incidentally, the dual rear tires improve the traction, and ambulances so equipped surprise the average driver in their ability on bad roads.

"All ambulances are designed with a center aisle and a set for the attendant on account of the number of serious cases which require these facilities. The average ambulance is very uncomfortable for sitting cases. The best arrangement is to leave the seat in position for the lower stretchers, and to hinge the back upwards for the upper stretchers in the opposite manner to the ordinary upper sleeping car berth. This arrangement provides a comfortable seat for sitting patients and also a pad under each stretcher to take the weight of stretcher patients when the ambulance strikes a bump. The side rails of the ordinary stretcher springs and the canvas sags in a very uncomfortable manner without such a support."

LOCAL JAPANESE INVENTS POLISH FOR AUTOMOBILES

An automobile polish which is guaranteed to last for at least a month and which will be applied to a Ford machine for about $2 a coating and to other machines at the same relative cost, has been invented by Y. Suzuki, a local Japanese public service chauffeur. A patent has been applied for.

A firm is being organized by the inventor, Henry H. Miki, K. Nakayama, E. M. Watson and C. F. Clemons. This firm will apply this polish alone and will be unique in that it will send its men to any place to do the work.

Explaining the success of this peculiar polish, Mr. Miki stated that, unlike other varieties, it contains no oil. For this reason it will gather no dust.

"We wash off the oil which has been put on the car in other polishes and then rub in this new variety. It contains no oil whatever, nor any acids to injure the paint of the machine. After it has been applied it maintains its luster for a month and a half, during which time the machine need only be dusted with a cloth or your hand to keep it clean."

The inventor of the new polish is from that district of Japan where lacquer work is done extensively and it is believed that the composition of the liquid is similar to that of famous Japanese polishes. He was not ready to state this morning the facts of its contents.

The polish will be called "Autopol," but will not be placed on the market for some time. During this period the newly organized firm will handle this polish alone. Later Mr. Miki will make a trip to the mainland to demonstrate the new variety. The backers of the project are positive of its success.

The 1916 production of more than 140,000 automobiles by the Willys Overland Co. required 38,885 freight cars to ship it to all corners of the United States and Canada. It is estimated that 50,000 will be required to take care of the 1917 output.

LEWIS PARTY MOTORS INTO RENO, NEVADA, IN LONG TOUR

(Continued from page one)

graveled and concrete roads a little over 50 miles when we arrived at Stockton, passing by fields of grain, orchards, sheep droves, grapes and vineyards by the acre and more avenues of walnut trees. Stockton is the one place where you can get everything fresh from the farms.

The state, or rather the federal government, built a large ditch or canal some five miles long through the low land to drain and keep the flood waters from the city at a cost of $250,000, as the city was practically under water during the winter months, but in digging the canal some of the dirt was left piled up alongside of the canal and backed up the surface waters onto the land of those who lived somewhat higher, covered up their farms and buildings and drowned their livestock; so they are now entering suit against the government for damages, and the suit has been pending over a year.

The party also passed by the famous Moore ranch, where in years past they raised the standard and thoroughbred horse by the hundred; also the Shippey ranch, that in the early days some 30 years ago was the rival of Palo Alto, the famous ranch of Governor Stanford, both trying to produce the best and fastest animals, with results that most of you know about. Both ranches were very successful until the death of their owners and enactment of the laws stopped betting on thoroughbred racing, which, of course, took away the interest in racing, and it became a losing venture and was given up, and the ranches used for other purposes.

The large West winery, one of the largest, if not the largest winery in the world, is very near the road.

We also passed the Stockton Insane Asylum, where 1900 women and 2500 men are confined. Some of the men were in the yard playing cards, other were playing quoits, others reading newspapers, figuring, etc.

We visited the Stockton mineral baths and had lunch there, and spent the night at the Stockton hotel, leaving about 9.15 a. m. for San Francisco, passing through San Joaquin, Livermore and Alameda counties and valleys with untold acres of fresh fruit ready for the pickers, and arrived in San Francisco about 2 p. m.

San Francisco

From July 22 to 30 we stayed around San Francisco and the suburbs. On Sunday the 29th we drove around the bay through the wonderful fruit district of Santa Clara and Milpatas county, through San Jose, Irvinton, visiting friends and relatives, passed through Centerville, Alverado, Oakland and back to San Francisco. Some of the finest fruit orchards in the world are in Santa Clara county. Right near San Jose is a large fruit cannery and there has been a strike on for over a week. The I. W. W. were busy among the laborers and they all stopped. There had been some fighting, but conditions had quieted down somewhat and the men had agreed to go to work for three days so as to save some fruit, but were to go out again Wednesday after we left, but we heard nothing from there since leaving California.

We left the Plaza hotel in San Francisco for Sacramento, traveling over the same road we had taken in reaching San Francisco, arriving at the Land hotel at 5 o'clock in the afternoon. The next morning we left Sacramento for Reno, Nevada, reaching there at 6 p. m., at the Riverside hotel.

We passed by some fine farms of alfalfa, all under irrigation and wheat fields that are flooded during the dry part of the summer so that the crop will mature better. Why, the untold acreage that is in the state of Nevada uncultivated is enough to feed the armies of the world for years, and streams of water all along the road in great rivers only wants the government to interest itself in developing the state, as it is too great an undertaking for any individual. The land and water is there, and it wants the knowledge of man to make the waste land productive. Besides the vast acreage of level land, there are miles upon miles of sand hills like the sand hills between Wailuku and Kahului on Maui.

We had lunch at the little town of Fallon, and around this town and so far in the state of Nevada we have seen more high class collie dogs than in all our other travels combined.

There are beet sugar mills, and of course, acres of beets, all under cultivation. The entire district is terraced for irrigation, while the surrounding country is very dry. There is running water in all the valleys that we have so far passed through. It is very much like the fellow that is all dressed up with nowhere to go. Nevada is dry, but water is everywhere.

Small wild sunflowers grow wherever there is moisture. We traveled over a desert for 50 miles and came to a station called Sand Spring, named after a beautiful, white sand hill some three miles away. The hill of sand has been there since the memory of man. It changes somewhat from time to time due to the wind. It is one and a quarter miles wide by something over three miles long. The water Mr. Lewis got for the machine came to within four feet of the surface, and this is the first place he had to buy water, paying 10 cents for enough to fill his radiator.

An hour after leaving Sand Spring we met a jerk line team of nine span, or 18 horses and mules, hauling oil in for the salt works that are in the valley, which produces salt 98 per cent pure. They were some distance from the road and we did not go to them.

After passing over two more mountain ranges and through two valleys we came to another stopping place, Frenchman's Camp, where you can get lodging for the night and a little something to eat, and here Mr. Lewis had to pay for water a second time. I mention this because houses and camps are 20, 30 and 50 miles apart, and there is no living thing between places except an occasional bird, rabbit or lizard, and a whirlwind that certainly showed some life, and some very threatening clouds. And passing on we came to a second jerk line team with eight span or 16 animals hauling oil, and water enough to water the team while on the road.

A little later we came upon three ladies, a mother and two young daughters in a Buick that had been stalled on the desert for two days and nights, and no relief in sight. We could not help them anyway and passed on, as they had sent word on by some passing car, and expected to get the broken parts replaced the next day. The mother seemed full of cheer, but the girls looked very discouraged. And all of them looked as though they had been working in a garage. About five miles further we came to another machine, a Ford, this time with the father, mother, two grown daughters, and a boy 14 or 15 years old. The machine had been stalled for four days and nights. The party had provisions and water with them, so they had not suffered any. They had just got new bearings and the father was putting them in, and hoped to be moving the next morning.

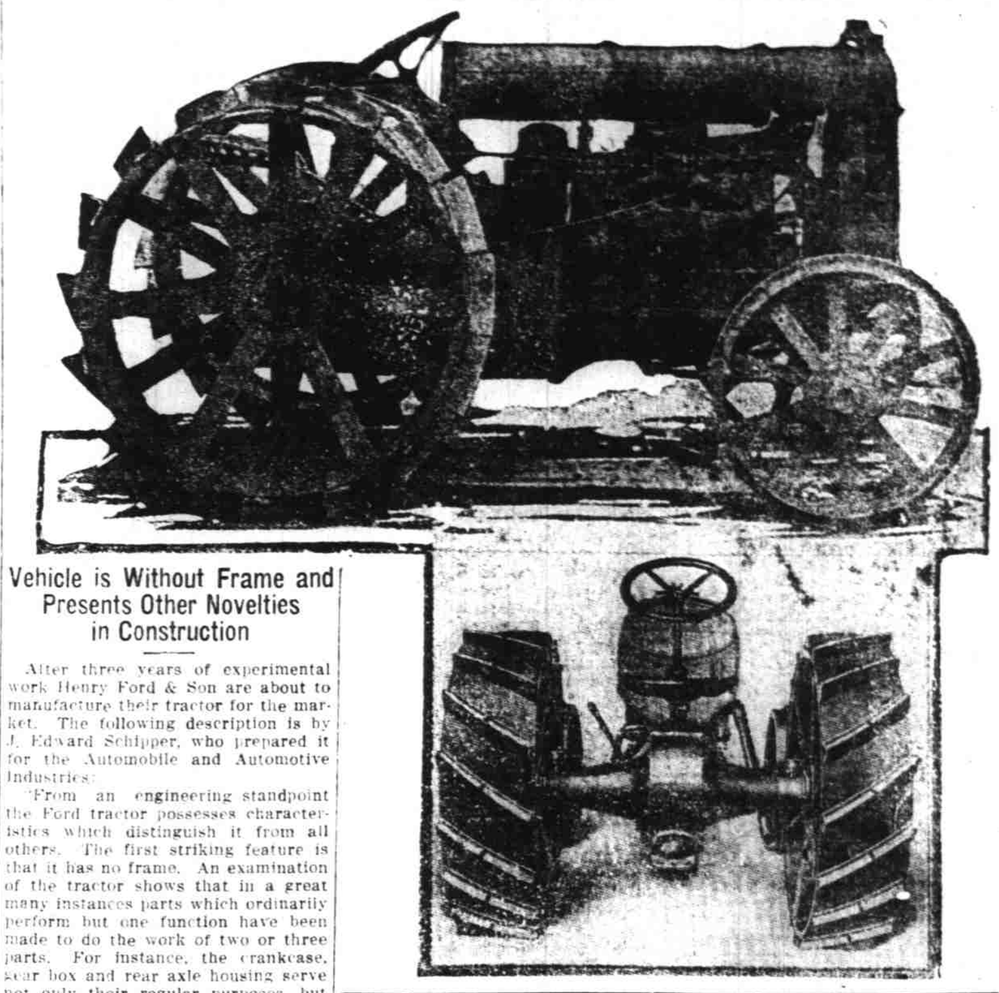
We finally reached East Gate, a farm house that takes care of travelers that wish to spend the night, and we found things very comfortable. The owner does not live there at the ranch. He just has that as a side show, having 1000 head of cattle and 60,000 head of sheep feeding on the government reservations in Idaho. There is a stone and concrete cabin on the ranch in good state of preservation that was built in 1868. We also saw there some petrified wood. An expert woodsman of the U. S. government passed there some time ago and said it was petrified oak; but the manager, Mr. Kavanaugh, told him there had never been any oak in the county, but the expert said there was no telling what forest had formerly been there.

The stream that passes through the farm is all used in irrigating the alfalfa field.

Over 20,000 freight cars were needed to take care of the raw material used in the manufacture of the 1916 production.

Altogether 12[illegible] freight cars were interchanged in the interest of Willys Overland railroad yard [illegible] year. These cars, end to end, would make up a train of 1000 miles in length, or would reach approximately from Chicago to New Orleans.

FORD TRACTOR IS READY FOR MARKET



Vehicle is Without Frame and Presents Other Novelties in Construction

After three years of experimental work Henry Ford & Son are about to manufacture their tractor for the market. The following description is by J. Edward Schipper, who prepared it for the Automobile and Automotive Industries:

"From an engineering standpoint the Ford tractor possesses characteristics which distinguish it from all others. The first striking feature is that it has no frame. An examination of the tractor shows that in a great many instances parts which ordinarily perform but one function have been made to do the work of two or three parts. For instance, the crankcase, gear box and rear axle housing serve not only their regular purposes, but form the frame of the machine.

"The engine is a four-cylinder 4 by 5 inch L-head block type, having a displacement of 251.2 cubic inches. According to tests which have been made on the dynamometer at the plant of Henry Ford & Son, it is capable of delivering 22 horse power at 1000 revolution per minutes. This is with kerosene and has a compression of 60 pounds absolute. The working torque of the engine is 1500 inch-pounds.

"The engine block is cast from semi-steel; in other words, from iron refined by the addition of about 15 per cent of steel scrap. The crankcase is also of semi-steel, as are the pistons, which latter are 4 7-8 inches long.

"Three crankshaft bearings are used and are provided with interchangable caps. This is one of the feaures of the machine tending toward simplicity and making for a low manufacturing cost. It is also a factor in the maintenance of the tractor. All of the crankshaft bearings are two inches in diameter and 3¼ inches long.

"A steel pinion is carried on the end of the crankshaft and meshes with a cast iron gear on the camshaft. These gears have helical teeth. The camshaft is carried in three bearings, each 1 15-16 inches in diameter, the lengths of front, center and rear bearings being 2¾, 2½ and 1½, respectively. The cams are forged integral with the camshaft and operate directly on mushroom tappets. No adjustment is provided between push rod and the valve stem, the poppet valves being operated directly. These valves have a clear diameter of 1½ inches and a lift of 5-16 inch. The valve timing is as follows: Intake opens 10 degrees after top center and closes 40 degrees after bottom center; exhaust opens 45 degrees ahead of bottom center and closes on top center.