WHAT MANEUVERS ARE TEACHING US ABOUT MILITARY HIGHWAYS

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Speaking frankly and "with the bark off," maneuvers are teaching us that we still lack a great deal of knowledge of how to operate motorized and mechanized combat units. It might be supposed, because the automobile has been developed in the United States and because we have more motor vehicles per capita than any other nation in the world, that we would excel the other countries in the operation of our motorized combat units. But this does not follow any more than that, although we pioneered the airplane, other nations have taken air superiority from us. We are still likely to think that a motor vehicle is a unit of transportation when, in reality, it is but a part of a unit of transportation: the highway on which to run it is the other part. Neither part is of great value in itself; only when properly balanced in relationship to each other do we have an efficient unit of transportation. Before going into the experiences encountered in the Louisiana maneuvers in August and September, 1941, let us discuss the general situation that brings about this study and the necessity of perfecting the motorized combat unit.

Military highways must be thought of as a means of waging offensive war, or as a defensive means. Until a short time ago, I believe, every American would have said, "We will never wage offensive war—defensive measures are all that we are interested in". The writer feels that there is little use of looking at defensive measures. In modern warfare, he who waits for the offender to come to his borders is lost. Our old neighbor, Knute Rockne, said, "Build up a good offense and the defense will take care of itself". Nothing could be more correct or better phrased to describe the military situation today.

The present war, both in Europe and in the Orient, is nothing but a contest of internal-combustion engines. On land, on sea, and in the air—merely an internal-combustion engine war. Let's stop for a minute and look at this little fellow who arrived with us at the turn of the century. I was a boy when he arrived in occasional usage. He was an innocent-looking cub, with his old make-and-break spark and intermittent and irregular explosion. The first one I remember furnished power for a grinder in a feed store. Since then, this placid-looking youngster has really and literally gone to town. We have paid for this servant of man all he is worth and perhaps more than he is worth; but we have him with us for keeps, like it or not. In peace-time in America alone, in one installation alone, the automobile, this servant of man, kills 40,000 people per year, injures many times that number, causes property damage in...
figures the size of which bespeak the more abundant life. Figuring a life at $10,000 plus injuries, time lost, doctor bills, hospital bills, property damage and all, the automobile has cost us more each year in America than our public-school system.

We have in a measure perfected the airplane for pleasure and commercial travel and for delivery of the mail and other commodities. We have paid for the peacetime development of the airplane with the lives of such men as Will Rogers and Knute Rockne. We have perfected the farm tractor to the extent that it has nearly replaced animal power on the farm, as the truck has already done on the city streets.

Now war has come and very nearly blankets the earth, and it is nothing more than a war of internal-combustion engines—a war under the Selden patent, if you please.

**The Road Engineer in Warfare**

All this discussion of the gasoline engine leads up to the part that road builders and road officials play, and will play, in this type of warfare. Mobility of fire power now determines the victor of any battle. Mobility is determined by the vehicle and the roadway. You will remember that Hitler did not start fighting until he had finished his military roads, the “Auto-bohnen”. While this nation has by far the greatest system of highways of any nation in the world, it must be remembered that, until recent years, no thought was given to military value in road location and construction. In general our interior roads, which were built without military thought, would be, and are, of great military value as roads incident to production of munitions and supplies. The roads adjacent to our borders are not so well suited, because these areas are not our heavily-populated areas and hence have few high-type roads. Some carefully-planned military highways are needed near our borders.

**Military Road Requirements**

Now let us consider what the 1941 maneuvers taught us with respect to highways. You men are not interested directly in the tactical road at the front, such as my regiment builds and maintains—and, by the way, a combat regiment with an infantry division is not expected to build any very good roads. Nor are you interested in those built by corps engineers or army engineers, but rather in the roads in the so-called theatre of operations.

My first recommendation and the one I am most emphatic in is wide shoulders. No matter how wide you make the road surface or pavement, make the shoulders 12 feet wide. No matter how light or poor the surfacing material is, make the shoulder 12 feet wide. Who knows what roads may become military highways? Let us make all shoulders 12 feet wide
on all roads except where topography is so rugged that it is out of the question economically. Under general or ordinary conditions, it costs but little more at the time of construction to build 12-foot shoulders. Of all integral parts that comprise road building, earth grading is the cheapest. The cost of it has decreased each year while the cost of other parts has increased. Earth that used to be bid in at $.50 per yard now is bid in at $.20; and so on accordingly. Such wide shoulders would give two extra lanes of traffic in emergencies. It would allow slow-moving traffic, such as refugees, to move on the shoulders while tactical vehicles used the roadway. It would allow our slow-moving transportation, which may have to be animal drawn, to use the shoulders, while the fast-moving combat elements could use the roadway. You will quickly challenge me and say, "What about the bridges—each bridge will become a bottleneck?" My answer to that is that military bridges will have to be moved into the road in question at the time of its use. Perhaps certain preparations for military bridges at the sides of the regular bridge could be made before military operations, such as the driving of treated-timber-pile abutments, so that the shoulders could be finished right up to the water's edge. You are again going to challenge me by saying that what I am proposing is out of the question from the standpoint of money, but I will answer that by calling to your memory that only five or six years ago our own Mr. Henry Ford said there would be no war in Europe for years to come because they could not afford it.

After speaking about wide shoulders and preparations for additional bridges, I next want to mention provisions being made to take vehicles off the road rapidly wherever there is cover such as trees, with a well-worked-out plan for putting them under cover of the forest and getting them back on the road. This can be done at very little expense by merely building what we know as farm entrances opposite areas that afford cover to military columns. These plans of course would have to be worked out with the landowners; yet while it might have been difficult to accomplish this a few years ago, we are all becoming realists rapidly and would rather have friendly troops maneuvering on our land than enemy troops holding it permanently.

Now for a short discussion on the offensive road. It is not my province in any way to set our military policy as to our aggressiveness; but assuming that we would rather be aggressive than vanquished, I will say that in many strategic locations in this country systems of offensive military highways should be considered. It will be needless to go into details of where these should be or of a definite plan of constructing them, and it will suffice to say that our highway system in the vicinity of our coast lines and borders should be adjusted so that we can move out rapidly and meet the enemy before he
arrives in our territory; so that our own nation with its great system of production can remain unhampered to support its army. During the war between the States, a southern cavalry leader made a great reputation. When questioned as to how he brought about his successful military operations, General Bedford Forrest said, "I aim to get there with the mostest men fustest". That was approximately 80 years ago, and the success of the Nazi Army in all of its campaigns until it struck Russia was merely following the plan of Bedford Forrest. If we are to keep the enemy from invading our territory, we must be able to move our fire power quickly to any point that he may choose as his entrance into our nation.

It will not be pleasant to have to add the military factor to the highway-construction equation in the future, as it will cost considerable money and in some cases will not work to the advantage of the civilian and peacetime population. However, I am certain that we are all ready to make these sacrifices rather than take orders from such enemies as we have today; and while the public roads administration and the highway departments have in the past few years been giving some attention to military highways, I am confident that more attention, more study and more money if you please, will have to be expended in the future.

**Maneuver Experiences**

Now let us examine a portion of the 1941 maneuvers that leads the writer to believe that the factors set out in this paper are sound and constructive.

The maneuvers were held in the southwest quarter of Louisiana and in a narrow strip of southeastern Texas just west of the Sabine River. This area between the Red and Sabine Rivers forms, to some extent, a triangle that narrows rapidly on the north as these two rivers get closer together, as near Shreveport.

The country is in general a cut-over area grown up to scrub oak and with young pine in some tracts on their way back to commercial timber again, and a small amount of virgin pine, which is now being cut because of higher prices.

The country is low. Lake Charles, Louisiana, which was the Headquarters of the Third Army for a long time, is 9 feet above sea level, and as you go north the rise is slight, terminating at Shreveport with an elevation of 225 feet.

Between the Red and the Sabine, the principal water course is the Calcasieu River, which runs southeast across the area. This is not a formidable stream in itself, but its bottom-ground country for a mile or more on each side is nearly an impassable wilderness and in some cases clearly impassable for even foot troops and their weapons. Infantry has to do some cutting to advance.
Highways in this area are very few, with even fewer highways that can be counted on for motor-vehicle movement. U. S. 190 runs along the south border of this area from Kinder to DeQuincy and is a modern concrete pavement with 5-foot shoulders generally, and in a few instances 15-foot shoulders where ditch banks are used for the highway and there is an excess of fill to start with. U. S. 165 runs north from Kinder to Alexandria and is a good concrete highway. From Alexandria to Shreveport State Highway 20 is the best route; it is a good secondary road of bituminous material with some concrete sections in it. On the west side U. S. 171 runs from Lake Charles to Shreveport and is a modern highway of both concrete and bituminous construction. The highways I have just described actually bound the area used in the maneuver of the II vs. the III Army. While these roads were heavily used, the interior roads of much inferior type were used primarily as the tactical roads over which troops were moved and over which supplies had to come forward.

About 380,000 men and 32,000 vehicles were involved in this maneuver. We again had it brought home to us that a motor vehicle is not a unit of transportation but a part of a unit and that the road is the other part. No matter how many trucks the army commander, or the corps commander or the division commander, has, unless he has roads to run them on they are of little avail: not only to run them on but to stop them under cover off the main road; to turn great numbers of vehicles around in the dark and return for more troops; roads that can be depended on in all kinds of weather. Nazi experience in Russia right now shows what can be accomplished with a highly-mechanized and victorious army trying to operate in a terrain with no roads and in terrifically low temperatures. The greatest army that ever rolled has failed in the last few weeks and is now being harassed from behind by the Cossack who, with his horse and lance, was supposed to have been relegated to the dump years ago. But because there is no highway for this Nazi vehicle to run on, the Cossack comes back and plays his old role successfully.

The actual experiences of the Louisiana maneuvers with highway movements are very interesting. Descriptions of them could go on for hours because the writer was charged with the road problems of his Division, but time will permit of but one or two instances. As you doubtless know, it is the function of the division engineer regiment to get our own infantry and supporting units forward when we are on the offensive, and to block the path of the enemy when we are on the defensive. Therefore, it became my duty to furnish road reconnaissance to the division commander, showing him the routings on which he could advance his motorized combat units. In many instances the best road that I could recommend for his units making the main effort was a dirt road through the
woods, over which 6 or 8 miles an hour was the best that could be done. In this particular terrain, divisions marching on foot could accomplish about as much. In one specific instance, when the 38th Division was on the left flank of the Fourth Army Corps and expected to keep abreast of the Eighth Army Corps, the only highway that we had available over which to make our main effort was the right shoulder on U. S. 171 through Leesville, Louisiana. The Eighth Army Corps, which wanted our assistance badly, finally agreed that we could have the right shoulder to move up on, they keeping the concrete slab. The entire 76th Brigade was moved through the town of Leesville on the 7 foot shoulder of U. S. 171. Time after time, because of the low marshy country we were in, these highways were jammed by tactical vehicles because there were no facilities to get the vehicles off the road and under cover, and our vehicles became the vulnerable target of enemy aircraft.

You would be interested I know, as highway men, to ride with a convoy of motor vehicles moving under orders and notice the paradox that manifests itself. Motor convoys are moved in what are called serials. A serial will consist of about 30 vehicles, and these vehicles will be allowed to run with about 100 yards between vehicles; the leading vehicle will be told, for instance, to set a pace of 25 miles per hour. In five minutes after this serial is on the road, the leading vehicle will be maintaining its 25 miles per hour and the rear vehicle will be making 40 miles an hour to keep his distance. Many factors bring this peculiar situation into being. For instance, the leading vehicle will be slowed down in a village, and upon emerging from the village will immediately go back to its 25 miles per hour. In the meantime it has slowed down those behind it while it was going through the village, and they are slowed down again considerably while the leading vehicle has again gone back to its 25 miles per hour. In fact, the column soon becomes like an accordion, expanding and contracting as the speed of the leading vehicle is, by necessity, altered. As highway men, you might expect motor columns to move through Indiana at 50 and 60 miles per hour, when the fact remains that 25 and 30 will be all that can be accomplished.

Since 1910 or thereabouts a great record has been made in highway building in the United States. Many of us have seen and taken a part in the entire performance up to this point. We are proud of the system we have built: proud that it has been built for the use of a free people in the pursuit of commerce and pleasure. It now appears that even though we are still the same peace-loving people, the military values of every future highway will have to be considered and sacrifices made accordingly. If it has come to that, the road builders of this nation accept the challenge and stand with the whistle cord in their hands and say, “Let’s go”.