

production for myself, maintaining and owning pipe lines and refineries and tank cars for distribution.

Then I served as consulting engineer for the Freeport Sulphur Co. in mining sulphur, which is important to the war effort, too.

Now, I remember some very sad experiences during the World War in transportation. I do not say this with any idea of detracting at all from the performances of anyone.

First, before going into this oil movement, I should like to impress upon you the quantities of oil that we used before this war started, and the quantities of oil that we have available right now to use, and the quantities that are absolutely needed. The shortage of gasoline for motorcars is not so important as the fuel oil which is essential for manufacturing steel and fabricating it into armament and the heat treating of it for this war. That is the most important thing we have to do—to keep these steel mills making steel in the open-hearth furnaces and the mills heat-treating it with oil. It has never been done with anything but oil because our modern heat treatment came into being about the same time as the use of oil for fuel.

In normal times Texas produces 1,600,000 barrels of oil a day. Of that amount 1,400,000 barrels move by tank ship in the Gulf-Atlantic route, 1,400,000 barrels of oil a day. In this war we will require more oil than the first World War did, which is, of course, more oil than was normally shipped—1,400,000 barrels a day.

There has never been very much pipe-line capacity across our Allegheny Mountains. The original movement of oil from Pennsylvania, when the oil business first started, were some very small lines which flanked the mountains and came to the east coast. They were made of wrought iron, and they were low-pressure lines, and some of them are still in service.

About 10 years ago there were steps taken to pipe natural gas through from Texas to New York. About three of those old lines were taken over for gas. They were unused oil lines which further reduced the capacity of movement of oil across the Alleghenies.

So there is a bottleneck which in wartimes presents obstacles which heretofore in peacetimes has also prevented the construction of pipe lines for that movement. The movement by rail up to 600,000 barrels a day is a movement for which the railroads are to be certainly complimented.

I want to tell you about an experience of my own in the World War. We had assurances then that the railroads could handle the traffic. Take our outfit; when the World War closed it had 650 tank cars, whereas before the World War started it had 150 tank cars. As the World War progressed, and as we got into it, we had to buy more tank cars, until we had 650 tank cars for this same movement of oil from the States of Texas, Oklahoma, and the upper Mississippi Valley. When the war closed, 150 tank cars moved the same oil that 650 tank cars were required to move during the World War, and we had 500 tank cars cluttering up the sidetracks somewhere; and, gentlemen, this war is more of a transportation war than the first war was. That cost my outfit \$1,500,000, most of which was my own. If there is going to be any better movement of oil in this war, we must have these added facilities. Transportation is the bottleneck. Recently I saw five trains waiting to get through a block. Already we can see a slowing down