Rubber Realities of 1944

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I do appreciate the invitation to talk again at a session of the Road School regarding the rubber situation. A great deal of history has been written in our industry since I spoke on the subject, “Outlook for Rubber”, at the Monday morning session last year.

POST-WAR PERIOD

Let's review briefly a little history. During the past 25 years before Pearl Harbor, we had become a nation on wheels, and 80 percent of our transportation was by motor vehicle. We had more than 30,000,000 vehicles, and our consumption of crude rubber in 1941 totaled 765,000 tons, with 75 percent going into the manufacture of tires.

We Americans, in our own U. S. A., in 1941 used more rubber than all of the rest of the world combined—about 60 percent of the world's production; and 97 percent of the world's production came from Malaya and the islands of the East Indies. Then came Pearl Harbor—and the Japs' swing through Malaya, Borneo, Java, and Sumatra. In two short months the areas producing 90 percent of our rubber supply were in the enemy's hands, and 90 percent of our source of supply was cut off.

We had a stockpile of less than a year's supply for normal times—only about 750,000 tons after cargoes had reached our ports which were enroute when the Japs struck at Pearl Harbor. Then you will remember the appointment of the Baruch Committee to make a thorough investigation into the rubber situation. This Committee was composed of Bernard M. Baruch, Chairman; Karl T. Compton, President of the Massachusetts Institute of Technology; and James B. Conant, President of Harvard University. The report, sent to Congress by President Roosevelt on September 10, 1942, showed that in the 18-month period from July 1, 1942, to December 31, 1943, we should need for military and other essential demands alone, with no allowance for passenger-car tires for civilians, a total of 842,000 tons of rubber. In 1941, production of synthetic rubber was only about 12,000 tons, with only one
plant in America producing a general-purpose synthetic rubber suitable for tire building—in any sizeable quantity—that plant being our Company plant in Akron, which had produced 7,000 tons out of a total 10,000 tons of the general-purpose synthetic rubber produced in 1941.

There is no doubt that the Japs thought they had hit us in a most vulnerable spot when they cut off the source of 90 percent of our crude rubber supply, and they surely did hit us in a most vulnerable spot; but they were all wrong because they did not comprehend the resourcefulness and ingenuity of us Americans and the cooperation of the American engineering, rubber, petroleum, chemical, and alcohol industries of our country.

In less than two years a giant industry has arisen from the pilot plant stage at a cost of $750,000,000. According to the Progress Report No. 4 of Col. Bradley Dewey, Rubber Director, dated November 10, 1943, production of synthetic rubber for the first quarter of 1943 was about 14,000 tons; for the second quarter, around 40,000 tons; for the third quarter, 70,000 tons; and for the fourth quarter, estimated at 120,000 tons—or a total for the year 1943 of 233,376 tons. For 1944 the estimated total production will be 818,200 tons. Truly, this has been a miracle in engineering accomplishment, and today there is no shadow of a doubt that our planes will continue to fly, our ships to sail, and our tanks to roll.

But we must not fall down on this estimated production. The Rubber Director's Report shows that the stockpile of natural crude has shrunk from 750,000 tons as of January, 1942, to 450,000 tons as of January 1, 1943, to 150,000 tons as of January 1, 1944; and total requirements for 1944 for military and essential civilian needs will be 950,000 tons. So our worries about tires for civilian use are still here.

I know that you gentlemen are most interested in the situation regarding truck tires and the possibility of getting enough to keep your trucks and highway equipment rolling, but you and I are also interested in tires for our personal cars. On December 11, 1941, four days after Pearl Harbor, all manufacturing of passenger-car tires stopped. We have been riding on tires which we had or which we could obtain after getting certificates from our OPA Boards. There were several million pre-war tires in the inventory of dealers and manufacturers, and this stock was also supplemented by the used tires—all over five which we turned in to the Defense Supplies Corporation. But this stock of pre-war tires and of used tires is now practically all gone.

Tire manufacturers have been making tires in the most popular sizes since last April and May—tires with a rubber content of 99.8
percent synthetic as specified by the War Production Board. About 5,000,000 of these tires were produced in 1943. We have been told that there will be enough rubber in 1944 for approximately 30,000,000 passenger-car tires—this to include new tires and recaps.

In 1941, the last normal year, replacement sales were approximately 35,000,000 tires, and 17,000,000 more were used for new car equipment. We now have a two-year accumulation of demand; so you can realize the built-up demand there is for new tires. Frankly, the prospects for attaining the 30,000,000 production are not at all promising. There is a serious problem of manpower. You must remember that all the tire builders were transferred over to other work supplying war needs when the production of passenger-car tires was stopped on December 11, 1941, and when for fourteen months no new passenger-car tires were manufactured; so there has been the problem of training an entirely new group of tire builders as well as the difficult and the additional time it takes to process this new man-made synthetic rubber.

Prospects for Truck Tires

The picture for new truck tires especially is not a pleasant one. The manufacture of truck tires was not stopped as was that of passenger-car tires, but continued at a regular pace because of the necessity for truck tires in our transportation system. There was no severe shortage of truck tires until about last August; then the increased demand for airplane and combat vehicle tires began to be felt, and all districts were put on allocation, i.e., given a definite number which was the limit which they could obtain from their factories during any one month. Only five of the larger tire manufacturers are making airplane tires for the Army and Navy. With production of airplanes for 1944 scheduled at 100,000 and combat tires needed for all the vehicles for our own combat units plus vehicles furnished our allies under the lend-lease program, you can get some idea of the problem of the tire manufacturers. Here is another important factor—it takes as many man hours to produce a 56-inch airplane tire, one of the sizes for which demand for military use has been the greatest in recent months, as it does to produce sixty 6.00 x 16 passenger-car tires. Since these airplane tires are built on the same machines and drums used to make truck tires, you can see why there is a truck tire shortage which will get more acute for several months until additional molds and capacity are ready for use. The next six to nine months will be the most critical period.
All the larger companies are expanding their truck-tire production facilities. For our own district, practically all our Akron production in truck tires is going for war needs, and all the truck tires for civilian use which we receive in the Cincinnati District are shipped from our plants at Oaks, Pennsylvania, and Los Angeles, California. We estimate that there will be a shortage of several million truck tires in 1944; our district allocation for January was almost 50 percent below allocation for December.

Many truck tires which could be repaired or recapped and continued in service have been replaced because truck owners would rather have new tires. So that no truck tires may be withdrawn from service when they could be repaired or recapped, central truck-tire inspection stations have been established in about 200 of the larger cities. It is now necessary to have a double inspection: first there is the regular official inspection station and then the inspector's report must be endorsed and approved by the central inspection station before request to any OPA Board for a new tire can be made. We are told that for the last year in Minneapolis and St. Paul, having a central-truck-tire-inspection station has reduced the number of requests for new tires by about one-third.

No certificate is now required for recapping either passenger-car or truck tires.

Service from Synthetic Rubber Tires

I know that many of you men have in your minds the question, "What kind of service can be expected from this new type of tire?" As I said before, in passenger-car tires now being manufactured 99.8 percent of the rubber is synthetic. All tubes both for passenger-car and truck tires are being made entirely from synthetic rubber, with the War Production Board giving directives to the tire manufacturers for the percentage of synthetic to be used in all rubber products. With the stockpile of natural crude dwindling and production of synthetic increasing each month, the percentage of synthetic required in truck tires has been increased every month, so that now truck tires are also being made largely of synthetic rubber. Synthetic rubber is also being used almost entirely for Camelback, the trade name for retreading stock. Retreads from synthetic are giving excellent service; in fact, longer tread wear than was obtained from Camelback manufactured from natural crude.

I believe you would be interested in the growth of Camelback production. In 1943, 233,000,639 pounds were produced, and there will
be a big increase for 1944. For example, our company production will be five times that of 1941 and in January, this month, we will produce as much Camelback as we did for all of the year 1939.

The tire industry has endeavored to acquaint the public with the rubber situation and the service it can expect from this new type of tire manufactured from synthetic rubber. No doubt many of you have read the full-page ads which appeared in the Sunday papers of all of the larger cities on three successive Sundays, November 7, November 14, and November 21. The first one has the headline: “The Rubber Shortage Is Behind Us But the Tire Shortage Is Still Here”; the second: “The Japs Were Wrong—Let’s Keep Them Wrong”; and the third: “Your Help Is Needed to Lick the Tire Shortage.” These ads were run by members of the Rubber Manufacturers’ Association, and the names of the 38 manufacturing and sales companies are listed in the ads. I should like to read a few paragraphs from the last of these three ads.

“You have cheered the news that America has nearly enough rubber to meet essential demands. But the headache is not over. The rubber shortage is behind us but the long anticipated tire shortage is here today.”

“What about synthetic rubber tires for passenger cars? We can answer that by saying they are good tires and will give you satisfactory mileage and service if you treat them right. What about truck and bus tires? The truth is that the synthetic truck and bus tires being built today will not stand as much abuse as pre-war tires would stand, especially overloading. We are making progress every day but overloading that damaged pre-war tires can ruin today’s synthetic rubber tires.”

And then there is a new warranty: “With conditions as they are and synthetic rubber in its present stage of development a new warranty has been necessary and has been adopted which applies to all tires. Under its terms, adjustments cannot be considered for injuries, such as bruises, when tires are injured or fail as a result of improper care, misuse, or abuse. This includes failures as a result of overload, excessive speed, improper inflation, or other non-defective conditions.”

Recommendations for Truck-Tire Conservation

What can be done to make our present truck tires last longer?
Here are ten factors which if given careful consideration will increase the mileage you can receive from your valuable truck tires.

1. Guard against underinflation and overinflation. Air pressure should be maintained in accordance with the rubber manufac-
turers’ inflation schedule. Underinflation causes excessive wear on the outside of the tread and shoulders—the tire is crushed too easily, flexes too violently, and builds up life-destroying internal heat. Overinflation causes excessive wear in the center of the tread and greatly reduces the normal skid safety and causes tires to bruise more easily.

2. **Guard against mismating duals.** When duals of widely different stages of wear are paired on dual wheels, the newer and higher tire carries most of the load while the older and smaller tire loafs. This, of course, will ruin the overloaded tire in short order. Where high-crown roads are a problem, it is practical to mount larger tires on outside dual position.

3. **Guard against mismating on driving wheels.** Tires of the same size and condition should also be matched on the opposite wheels of driving axles. A smaller tire must make more revolutions than a larger tire. Consequently, when tires of different sizes are mounted at opposite ends of the axle the differential is required to compensate continually for a different speed of rotation at either wheel.

4. **Don’t put old worn-out tubes in new casings.** It is poor economy and false conservation. Many a good casing is ruined because of a poor air chamber, which the inner tube actually is. When tubes are installed, plenty of talc should also be used. This is particularly true for tires on drop center rims. The new synthetic tubes do not have the stretch of pre-war tubes, and the exact size of a tube must be used. Talc acts as a lubricant. Where there is not sufficient lubrication when a tube is put in, that part of the inner tube which goes down into the well of the drop center rim is forced to stretch as much as 67 percent; but this stretch can be reduced to 12 percent by using sufficient talc, so that the tube is properly lubricated and the stretch distributed over all of the tube. This is especially true with the new synthetic rubber tube.

5. **Watch the flaps.** Badly worn or cracked flaps chafe tubes and lead to premature tube failure. Flaps that are too small pinch the tubes. Those which are too large fold over or buckle and chafe the tubes.

6. **Don’t bleed the tires.** Long, fast runs, particularly in warm weather, generate tire heat which raises air pressure above recommended levels. To bleed this air pressure during a run will only generate more heat and eventually raise the air pressure
even higher. It is far better to stop long enough to let the tires cool and allow the pressure to drop naturally without loss of air.

7. *Don't distribute the load unevenly.* Every vehicle that has an uneven load goes on a tire-killing run.

8. *Watch the speeds of your truck.* Speeds build up destructive tire heat. For example, a 10-ply tire giving 100-percent service when operated at 40 miles an hour will give only half that service when operated at 60 miles per hour.

9. *Eliminate fast stops and starts.* Jack-rabbit starts and stops are sabotage today—they waste gasoline and cause unnecessary strain on your trucks. Moderate stopping and starting will greatly extend not only the life of your tires but also your trucks.

10. *Watch your brakes, bent or damaged rims, and bent or sprung axles.* Brakes out of adjustment or brake drums out of round cause tires on these wheels to wear away in spots. Unequal brakes scuff and slide one tire more than the other, thus wearing down the tread rapidly and irregularly. Bent or sprung axles will cause the same type of rapid wear as misalignment. Bent or damaged rims are the cause of most tire failures at the bead. Dirty and rusty rims should be cleaned before any tire is mounted.

Yes, gentlemen, the rubber shortage is behind us but the tire shortage is still here, and your help is needed to lick this tire shortage, especially for truck tires.