

ENGINEERING

New Industry Keeps Cars Running

Tire Treading, Comparable To Having Shoes Re-Soled, Will Give Owners Use of Cars for Several Years

By DOUGLAS W. CLEPHANE

IF IT were not for the recent development of a new industry the great majority of the motor vehicles in the country would be off the roads within a year, because of lack of tires.

However, tire treading will keep many of these vehicles in operation. When the government suddenly cut off all new tires from civilians except for a few emergency needs, Leon Henderson, head of OPA, said in effect, "You can't have new tires, but at least for the time being you can have them treaded."

Millions of American car and truck owners then heard of the new treading industry for the first time. "What is treading? Why have we not heard of it before? Is it safe? How much should we pay?" These questions have been major topics of conversation for the past few weeks.

Treading can be compared to having shoes soled and heeled. When a good shoe has gone through the original sole or the heels have become worn, most of what you paid for remains. The same thing is true with tires. Increasing vehicle speeds and other factors have forced the tire manufacturers to build a tire that will far outlast its tread. When the non-skid design has worn off, the balance of the tire is still in good condition. It is a great economic waste to discard this tire casing and the well informed tire users have been having their tires treaded two, three or four times for a number of years.

Industry Is New

But why is the average motorist just hearing about this? There are several answers. First the tire treading industry is somewhat new. Only in the last five or six years have the necessary equipment and supplies to place a new tread on the old tire become available. But for many years all the larger commercial operators have been having their tires treaded. There were twenty tire dealers in the past who have wanted to sell you new tires for every one that was equipped to tread them. The tire manufacturers have naturally been more inter-

ested in selling new tires than in making the old one last as long as possible. The organizations who are equipped to do this work are usually comparatively small and their business has grown so rapidly in recent years they have not had to do much advertising to keep busy.

But during this period the number of tires treaded each year has increased from about 3,000,000 in 1936 to nearly 8,000,000 in 1941.

The United States Army recently completed an exhaustive study of treading on all types of vehicles under the hardest possible operating conditions. The final Army report said that a good new tread job on a tire in good condition would last an average of 80% as long as the original tread and that the tire can be treaded as many as four or five times if given proper care. Most post office trucks ride on treaded tires and scores of cities have all their police and fire department cars and trucks riding on rebuilt tires.

Precautions Necessary

As with many other new industries there are certain precautions the buyer should take in having the work done.

When you start to have your tires treaded you may begin to hear such words as retreading, recapping, top capping and many trade names. What is the difference? Very little. When a tire is retreaded, the operator takes off all the old rubber on the tread portion of the tire with a high speed wire or tack wheel. A coat of cement is applied, the strip of new rubber put on, and the tire placed into a steam heated mold which forces the new smooth rubber against a metal design by air and mechanical pressure. The heat presses this design into the smooth rubber and at the same time vulcanizes the new rubber to the old casing.

Retreading is now rapidly being discarded in favor of a slightly different method by which the surface of the old tire is merely roughened, but all the old rubber is left on and the process continued as described above. The government has just issued an order prohibiting the future manufacture of materials for retreading, so in the future the opera-

tor must use the newer recapping or top capping method.

Assuming the tire was in good condition except for the worn tread, a quality treading job will usually last almost as long as the original tread, in fact some shops guarantee it to give new tire service. The tire will be just as strong and will offer no more dangers of blowouts than a new tire.

Won't Work on All

However, not all tires can be treaded. Most tire manufacturers have been selling very cheap tires in recent years. These are known in the trade as fourth or fifth line tires and cost less than half the price of the same make of tires with which your car was originally equipped. These cheap tires are not as strong as the same maker's first line and usually the sidewalls, wire beads or fabric will be damaged beyond repair by the time the tread has worn out. Also it is dangerous to tread tires which are very old or which have large breaks or other damage. Your local treading station will be glad to tell you the exact condition of your tire and if they recommend against treading it will be wiser to put up your car than risk serious accident through tire failure.

As with anything else, you can buy a very cheap treading job or you can buy the best. The equipment to do the work has only been developed recently. There is still a lot of treading equipment in use which is obsolete and which will damage the tire in the heating process. The shop can use the best materials or they can save money by using inferior cement, repair materials and rubber.

The surest way to ruin your tire is to let it wear into the fabric before you have it treaded. In that condition a bump into a curb or other shock will put a hole in it that cannot be repaired with safety. Take your tires to a treading shop just before the non-skid design has worn off. Then if you take proper care of them and repeat the operation each time they become worn, you can apply from two to five new treads.

The government has recently set a top price that treading shops can charge for all sizes. The great majority of recent model passenger cars are equipped with 6.00-16 size tires. The government says that no shop can charge more than \$7.50

for the best work on this size or more than \$6.45 when lower quality rubber and other materials are used. However, there are shops that will do the work for considerably under this price. Such savings do not pay. If a lower price is charged, much of the vital inspection, minor repair work and other steps to rebuilding the tire to original condition must be skipped.

Toward the middle of January the government issued an order requiring that all rubber used for passenger car treading be cheapened by using less crude

rubber and more reclaimed rubber, carbon black and other ingredients. Many shops have a supply of the former higher grades of rubber on hand which may last for a few weeks. However, shortly all passenger car owners will be getting the cheaper rubber. This will probably last less than half as long as the original tread.

This is just one of the many steps the government has taken to allow as many people as possible to tread their tires.

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ENGINEERING

Power For War Industries Will Be Increased

Considerable Saving of Critical Materials and Labor Possible by Making Existing Equipment Do More Work

MORE power to meet war's demands will be obtained out of existing electrical machinery, the American Institute of Electrical Engineers heard at their meeting in New York.

New plants and transmission lines will be needed to meet war's increasing demands for electrical energy, but a considerable saving of critical materials and of labor can be effected by making existing equipment do more work. This was pointed out by Philip Sporn of the American Gas and Electric Service Corporation, New York City.

Existing equipment is capable of a considerable overload. It is desirable to examine how much of this could be carried regularly with reasonable safety during the war time, H. P. St. Clair, also of the American Gas and Electric Service Corporation, declared.

In addition, there are devices, voltage regulators, capacitors and boosters, by which the capacity of a transmission line can be increased, or a saving of copper effected, Harold Cole of the Detroit Edison Company pointed out. Some rearrangement of the facilities for greater economy and efficiency would accomplish the same purpose.

Mobile Transformer

AMOBILE 2,500-kilowatt transformer substation that can be rushed on a truck to any spot where needed, was described by M. W. Reid of Ebasco Services. This transformer can draw

high-voltage current from any point along a power line and transform it to a lower voltage for further transmission along a temporary line, or to a still lower voltage for immediate domestic use. It can supply a town, a camp or a group of factories with the electricity they need and at any voltage they need, when through disaster of war their regular supply is cut off or deficient.

Prizes Awarded

THE Alfred Noble Prize for 1940-41 was presented to Robert F. Hays, Jr., of the Sperry Gyroscope Company's research laboratories, for his paper entitled "Development of the Glow Switch."

The Edison Medal, highest award of the A.I.E.E., was presented to Dr. J. B. Whitehead, professor of electrical engineering at Johns Hopkins University.

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RADIO

Saturday, February 14, 1:30 p.m., EST

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

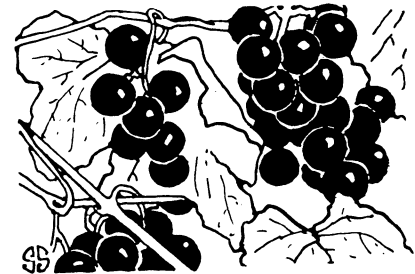
Lawrence Langner, New York patent attorney, who is one of the principal figures in the Theatre Guild and also a member of the National Inventors Council, will discuss how inventors can help win the war.

Listen in each Saturday.

Tuesday, February 10, 10:15 p.m., EST

Science Clubs of America programs over WRUL, Boston, on 6.04 and 11.73 megacycles.

One in a series of regular periods over this short wave station to serve science clubs, particularly in high schools, throughout the Americas. Have your science group listen in at this time.



Bible Botany

THE BIBLE is filled with reference to plants, literally from cover to cover. It begins in the first chapter of Genesis, with the earth bringing forth "grass, the herb yielding seed, and the fruit tree yielding fruit after his kind;" and the last chapter in the Apocalypse of St. John tells of a mystical Tree of Life growing in the New Jerusalem. In between, many scores of species are mentioned. There is no book in The Book that does not have at least a little botany in it.

A recent book by Eleanor A. King (*Reviewed, SNL, this issue*) brings together the essential information about plants mentioned in the Scriptures, and tells how many of them can be made even more vividly familiar by actual cultivation in our own back yards.

Many of the plants are thoroughly familiar to us, some of them but little changed since the days when Abraham and Moses and Jesus beheld them, others vastly improved over the ancient forms through centuries of selection and breeding.

Corn and oil and wine, that basic nutritional trilogy, are among those but little altered. "Corn," in the Bible, always means the common bread grain of the time; usually wheat, sometimes including barley. American corn, or maize, is of Indian origin and of course was unknown in ancient Palestine. "Oil" always means olive oil; and the cultivated olives of the Near East, grown mainly for the oil press, are essentially the same trees they were two and three thousand years ago. The vine that yielded Biblical wine is rather unlike the table-grape varieties of the eastern United States, but quite similar to the European type of wine-and-raisin grape grown in California, especially the small, dark "Mission" variety. (*Turn to page 91*)