

PREPARE MACHINES EARLY FOR WINTER

Radiator and Lubrication Needs Attention Before Cold Weather Comes

Now is the proper time to prepare your car for the approaching cold weather season. Motorists who are wise, will, at this season of the year, guard against the pranks which nature plays by causing the thermometer to take sudden descents with a possible ill effect on the motor. By giving due attention to the lubrication and cooling systems, especially without an inconvenience or difficulty, autoists can drive their cars despite the coldest weather, according to the Hupmobile dealer in this section.

"Of first importance is the care of the radiator," Mr. Kirkwood points out. "Water freezes at 32 degrees Fahrenheit and can expand with such force that it is apt to crack a radiator with expense and inconvenience to the owner. To prevent this condition the water should be drained when the cool weather first sets in and the system filled with anti-freeze solution. Undoubtedly the most popular solutions are distilled glycerine and alcohol. Alcohol costs less but because it vaporizes rapidly at operating temperatures of the motor, the alcohol must be replenished frequently. Distilled glycerine, on the other hand, is more expensive per gallon, but since it does not vaporize, only water need be added at regular intervals. At the end of the season, it can be drained and set aside for next winter. With any solution, it is necessary to have it tested for freezing point to suit the climate.

"Although the lubrication system is not so liable to freeze, it is important that a winter lubricant be used where the temperature is exceptionally low. Proper lubrication can be maintained on the bearing surfaces in these units only where the lubricant remains a semi-fluid state.

"The oil used in the motor during this period must be of a character that stands a zero-cold test. During extremely cold weather three-fourths of a pint of denatured alcohol should be used with each gallon of oil to prevent freezing of water, caused by condensation. It is suggested that the crankcase be drained and refilled with fresh oil because of the increased condensation and dilution resulting from lower operating temperature.

"Also, the transmission and rear axle should be drained and refilled in advance with a lubricant that will stand a zero-test, or 40 per cent of the lubricant drained off and replenished with zero-cold test motor oil.

"To guarantee easy starting in the winter Hupmobile starting battery and starter tests in a cold storage room at variable temperatures reading far below zero. This accurately determines the demands on the starting motor under unusual conditions. The efficient manifold design and thermodynamic control of heat enables the motor to reach its normal running temperature without a long 'warming up' period.

Cobbs & Mitchell Co., lumber and building materials for every purpose. Get estimates, look at quality of material, then you will order. 349 S. 11th St. (4)

HOW TO PREVENT FREEZING IN WINTER

(Continued from page 1.)

The first precaution is to make sure that the water in the cooling system cannot freeze. A neglect of this detail until after the first sudden cold snap may result in hundreds of dollars of expense for electric welding of the engine where the internal ice has burst it. This means either that the radiator must be emptied out every night and whenever a long stop is made in cold weather or that some anti-freeze solution must be put in the radiator.

There are several of these. Al-

cohol, the most popular, has advantages and disadvantages which are well known to the average motorist. There are several new ones however, including glycerine, whose characteristics are not so well known but which have much to recommend them for engine protection in cold weather.

Glycerine, a by-product of soap manufacture, has been suspected of a tendency to eat into metal and rubber hose connections. This is not true, according to a lengthy report by the U. S. bureau of standards, when the glycerine is chemically pure neutral type, free from acids and alkalis, as prepared for radiator use by the larger soap makers. The fallacy is doubtless due to the fact that glycerine will seep out of tiny openings through which water could not pass, or, if it did pass would be evaporated immediately by the engine heat and the air.

Glycerine will not evaporate immediately and therein lies one of its greatest values to the motorist. You can fill your radiator with the proper solution of glycerine anti-freeze solution and water and never give it another thought throughout the winter except to replenish with a pint or so of water every few weeks.

The great precaution that must be taken before glycerine is put in is to have the water circulation system completely tightened up and if necessary, new hose connections installed.

Several other advantages of glycerine are that it has an extremely low freezing point, a boiling point somewhat higher than water so it will not cause engine overheating, it will not harm body finish at all and is free from objectionable odor. Its flow, even in the coldest weather, never becomes sluggish enough to interfere with the cooling properties of the solution.

There are several other commercial antifreeze mixtures on the market which have similar advantages but which have as bases other chemical compounds.

Racing an engine to get it warmed up on a cold morning and running with open choke are two of the high crimes of motoring which are costing car owners millions of dollars annually. When the engine is cold the oil in it is more or less congealed and, for several minutes after the start, many of the parts are rubbing against each other practically without lubrication, a highly dangerous condition for cylinder walls, pistons, bearings and other expensive parts.

Somewhat the same situation is produced by running it with the choke open. In this case the cylinders receive an overabundance of raw gasoline which works down past the pistons, taking much of the lubricating oil with it and forming in the crankcase a weak, watery mixture which has little lubricating value.

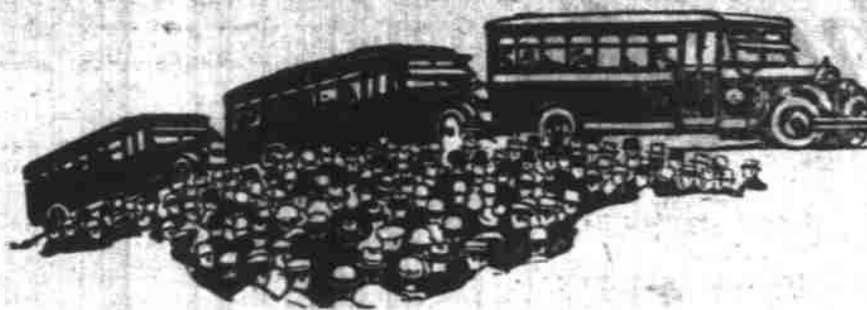
The remedy for both of these ills is to run the engine slowly with the spark retarded and radiator shutter closed in the garage for five or six minutes before starting out. But be sure that the windows and doors of the garage are open. Deaths from the carbon monoxide poisoning of automobile exhausts are increasing annually and are totally unnecessary and easily avoidable.

To have your service station prepare your car for winter will cost a very few dollars but will return to you a great many dollars in satisfactory winter motoring and in the avoidance of the damage which carelessness causes at this time of the year. A cleaning and winter adjustment of the carburetor, the installation of an automatic or hand operated radiator shutter if your car is not equipped with one, a complete cleaning out of the water system before the antifreeze solution is put in and of the crankcase before the lighter grade of oil is put in for winter use, a cleaning of the spark plugs, the oil purifier, the distributor and the gasoline tank and the fuel lines are some of the inexpensive things that should be done in order to secure placid and trouble-free winter driving.

On account of the greater number of cold starts in winter the oil should be completely changed every 500 miles, even in most of

L. C. C. Hears of Bus Growth in Northwest

363 Busses in Minnesota carry 11,000,000 passengers annually



1926 will be the biggest year to date for motor bus travel in the Northwest, according to Edgar F. Zelle, president of the Minnesota Motor Bus association, testifying before the interstate commerce commission hearings in St. Paul. Traffic is now being carried at the rate of 11,000,000 passengers annually.

the cars equipped with thermostatic water control, oil filters and crankcase ventilation systems.

The battery will make a lot of trouble for you in winter if you abuse it. Starting more frequently in winter and using the lights more makes the battery work over-time. The water should be kept constantly at the proper level and the battery should be kept charged, to avoid freezing or quitting cold some night when you least expect it and when it is most inconvenient.

If you have a high regard for your car you will find that it pays handsomely to leave it in the garage when the roads are full of jagged ice and deep frozen ruts and to use a taxi-cab for your necessary errands. Winter is a particularly hard time for tires and driving them at high speed over sharp ice and ruts cost a lot of money.

You know probably that wet rubber cuts more easily than dry rubber and that a weekly inspection of the tires should be made and all small cuts and scratches filled with rubber cement. Tires are a lot better than they used to be but even the best of them can have thousands of miles service taken out by careless treatment in winter. Proper tire inflation becomes especially important in the cold season.

A garage heater to take the chill off the car, an easily installed tonneau heater to keep your passengers comfortable, lap robes, foot warmers, automatic windshield wipers with double blades, radiator anti-leak solutions, spring covers, winter tops for open cars and most important, loosely applied skid chains for slippery days are all things to consider in reference to the comfort, safety, economy and efficiency of winter driving.

If you want to give a Kodak for Christmas consult Photo Gus now at Patton's Book Store. Learn all about different models. His time is yours. (4)

MUSIC "ON THE AIR"

Following a triumphal tour of the Scandinavian countries this summer, Maria Kurkenko returned to this country in September to continue her concert work. On November 10, she may be heard "on the air" as she will broadcast several selections during the Atwater Kent radio hour from station KPQA of Seattle. She will be assisted by Myron Jacobson, pianist. Among the songs she will sing are: "Mio caro bene" from Rodelinda, "Aria de Venus" by Lully, "My Lover Is a Fisherman" by Lily Strickland. In addition she will sing several other selections and Mr. Jacobson will render some piano solos.

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DUCCO COURSE IS GIVEN

A course of instruction on the application of Ducco is to be given in the service school conducted by the Chevrolet Motor company at its factory in Oakland, California. Dealers from all sections of the Pacific coast are sending their Ducco men to the big plant for instruction on the application of this latest innovation in automobile finishes.

TRUCKS PENETRATE HEART OF DESERT

Interior of Australia Visited by Sturdy Machines of Geologists

"Never Never Land," the great desert of Australia, so named because it never, never rains there, has been penetrated and explored for possible petroleum resources by a party of American geologists using a Graham Brothers one-ton truck, according to R. E. Allen, head of the expedition, who has just returned to the United States.

In a recital of experiences that for oddity and interest compare with a chapter from the Arabian Nights, Allen expressed himself as being delighted at the completely satisfactory performance of the one-ton Graham Brothers truck employed as transport for the expedition. "I was prepared for dependability," he said, having used Graham Brothers trucks in oil field work before, but the exceptional performance of this truck in rough country much the same as Roy Chapman Andrews traversed in the Gobi desert with his Dodge Brothers caravan, was truly remarkable.

"In 16 months," Mr. Allen said, "we traversed an area as large as California, covering 22,000 miles in all. Despite the heavy load of a ton of gas, 20 gallons of oil and water, and all food, bedding and equipment, the sturdy truck carried on without the slightest mechanical complaint, with the remarkable average of 15 miles to the English gallon of petrol, and with petrol at 65 cents per gallon, this economy was an enormous saving factor.

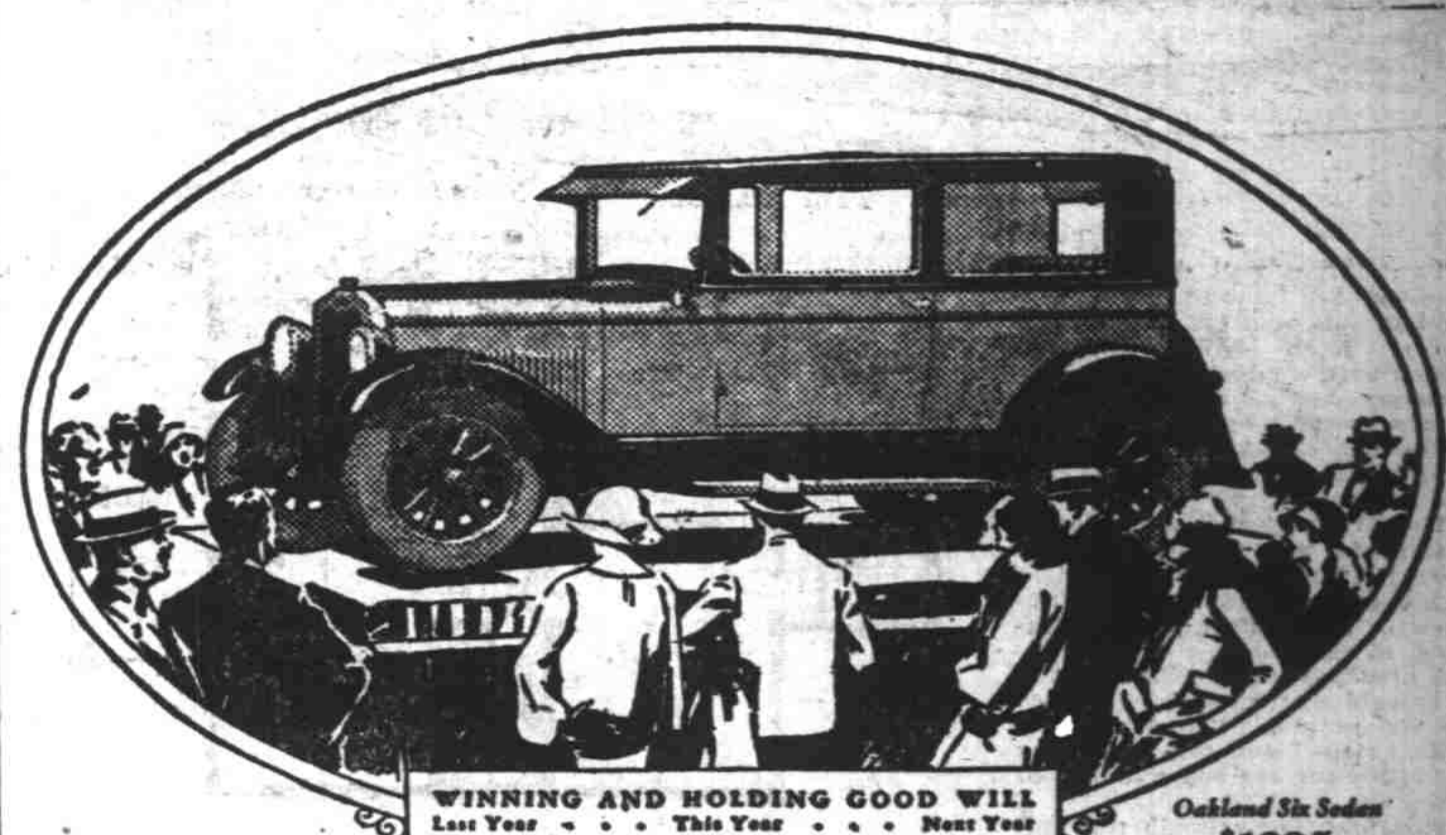
"Australia," he continued, "is about as large as the United States, and has for the center, the dreaded 'Dead Heart' or never-never land which has been little if at all explored. The scarcity of water in this parched desert, for much of it resembles the most arid portions of our so-called Great American desert, is inconceivable and can be realized only

by the fact that in one portion we drank, in October, 1925, rainwater that had been saved by natives since the spring of 1921.

"Artesian wells, heavy with alkali and distastefully unpalatable to man are, however, the life blood of Australia, because they furnish drinking water to cattle and sheep, the raising of which forms Australia's chief industry. Water from these wells, called 'bores' is carried in 'bore drains' which are similar to our irrigating ditches, for as much as 70 miles. Australian steers forage food where American cattle would starve, fodder being so scarce and so lacking in nourishment that the Australian steer is usually five years old before he is large enough to market. The sheep and cattle ranches or 'stations,' as they are called, are of vast extent, one of the largest containing 42,000

square miles, not acres. "The prickly pear cactus and rabbits are as much of a curse to Australia as the lack of rain, and great quantities of arsenic are imported each year to combat these two evils. The cactus is increasing at the almost incredible rate of thousands of acres a year and grows so thick that horses and cattle cannot make their way through it. Clearing it is unprofitable inasmuch as the cost of clearing is \$10 an acre and the land itself is only worth \$2 an acre on lease from the government. The thorns on this variety of prickly pear do not seem to be long enough to puncture a tire for in some places we had to buck this cactus in our Graham Brothers truck, plowing through seven miles of it at one time in three hours.

"The animal life of Australia consists largely of rabbits, kangaroos, some of which weigh 1000 pounds, and are as large as a horse, wallabies (small kangaroos), camels and emus. The latter an ostrich-like creature, is very numerous. Two were run over by our Graham Brothers truck in its travels. "To the blacks, as the aborigines are called by native Australians, our Graham Brothers truck was a constant source of wonder, most of them never having seen a motor car before, and we had the greatest difficulty in keeping them from running off with parts of the truck as souvenirs. "Take it all in all," the explorer sums up, "Australia is still frontier land, but development is sure to come as long as such dependable transportation as Graham Brothers truck is available."



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