

MOTORS and MOTORING

One Automobile for Every Mile of Road

The total length of public roads in the United States outside the limits of incorporated towns and cities was about 2,452,000 miles on January 1, 1916. Of this, about 277,000 miles, or 11.5 per cent., were improved with some form of surfacing. The mileage of surfaced roads has been increasing at the rate of about 16,000 miles a year, and in 1915 approximately one-half of this increase was made under the supervision of State highway departments. In addition, these departments supervised the maintenance of nearly 12,000 miles of main and trunk-line roads.

The increase in expenditures for road and bridge work in the United States has been from approximately \$40,000,000 per year in 1904 to about \$232,000,000 in 1915, an increase of more than 250 per cent. The expenditure of State funds during this same period increased from about \$15,000,000 to more than \$93,000,000. In addition, more than \$27,000,000 of local funds was spent under State supervision in 1915, bringing the total road and bridge expenditures managed by the States to \$120,000,000. This amount is greater than the total expenditures for roads and bridges from all sources in 1904.

The growth in importance of the State highway departments has been rapid. The first of these agencies was created in 1891 in New Jersey, and now some form of highway department exists in every State except Indiana, South Carolina and Texas. Since their inception these departments had expended to January 1, 1916, an aggregate of \$266,550,955 in State funds for road and bridge construction, maintenance, and administration. They had constructed over 60,000 miles of roads in co-operation with the States. More than 40,000 miles of these roads were surfaced.

The falling off in the value of road work performed by statute and convict labor was from \$20,000,000 in 1904, when the total road expenditures were \$60,000,000 to about \$15,000,000 in 1915, when the total expenditures had grown to \$232,000,000. This was a reduction from 25 per cent. of the total in the former year to less than 5 per cent. of the total in 1915.

An increase in the use of better and more expensive types of roads also is shown by the recently compiled statistics. This development has been due, in large part, to the great increase in automobile traffic. It is estimated that there are now approximately two and one-half million automobiles in use on the roads of the country, or one car for every mile of road. This present motor traffic is in excess of traffic of all sorts 12 years ago.

The cash road and bridge expenditures of the United States averaged only \$25 per mile of rural roads in 1904. In 1915 this average had grown to \$109 per mile. New Jersey led all other States, both in 1904 and in 1915, with \$221 and \$415 per mile, respectively. Nevada made the least expenditure in both years—\$3.72 per mile in 1904 and \$17 per mile in 1915.

Motors Feel The Cold

Care Must Be Taken to Avoid Straining Batteries

With the thermometer ranging around zero, motorists are complaining their cars do not start as easily as they did last winter. Cold weather usually brings ignition, starter, battery and gasoline troubles, but these worries seem more pronounced this winter than ever before.

Motor car dealers say the poor grade of gasoline sold here is responsible. "There is much kerosene in the motor fuel sold here as gasoline," said one dealer. "I believe the only way to get through the winter without trouble is to 'prime' the motor, or pour hot water on the carburetor before attempting to use electric starter."

"The kerosene in the gasoline almost prevents formation of a gas vapor, necessary to explosion in a motor car engine. With the thermometer around five degrees, one couldn't ignite a pan of such gasoline, exposed to the weather, with a match. It won't vaporize. The electric starter is not a self-starter, but a self-cracker. Those who prefer to keep their feet on

The Newest Flivver—The Auto Rolling Chair



Photo shows Mr. Edmon C. Turner and his wife in their roll chair automobile speeding through the streets of New York City. They were not arrested for speeding the speed limit.

starters five minutes instead of priming their motors, soon come to grief. No storage battery can hold up under such a strain.

"The average motorist doesn't know what causes the commotion under the hood of a motor car. He must have gasoline vapor and a spark. No electric starter will start a motor without both."

Treat Car With Care

"My wife has driven motor cars five years. Right now she doesn't know where the carburetor is or what its function is. The carburetor is a gas vapor making machine."

"There are many 'priming' devices. Several drops of gasoline poured into the pet cooke on the head of the cylinders of some motor cars is one method. Hot water on the carburetor is another. Several companies make expensive priming devices."

"If you drive a motor car in the winter and expect to get any service out of it, take care of it. You wouldn't let a horse stand on the street in this weather for an hour or two. Treat your car as you did your horse."

A New Motor Fuel Possible

Breweries Are Located Well to Distribute Alcohol

The likelihood of alcohol being put on the market as a substitute for gasoline, as has been promised by Henry Ford, was discussed by P. E. Moskovics, commercial manager of the North & South company of Indianapolis, makers of the Marmon motor car. Mr. Moskovics has just returned from a trip to Detroit.

"The first thing to understand," he said, "is that Henry Ford is no man's fool, but when he announces alcohol as a substitute for gasoline it is like Edison's announcement of the cheap electric motor car. It is possible, but hard to accomplish."

Cost of Distribution a Factor

"One of the biggest factors is the cost of distribution. It is conservatively estimated the gasoline interests

"TIZ" FOR TIRED AND SORE FEET

Use "Tiz" for puffed-up, burning, aching, calloused feet and corns.

Why go limping around with aching, puffed-up feet—feet so tired, chafed, sore and swollen you can hardly get your shoes on or off? Why don't you get a 25-cent box of "Tiz" from the drug store now and gladden your tortured feet?

"Tiz" makes your feet glow with comfort; takes down swellings and draws the soreness and misery right out of feet that chafe, smart and burn. "Tiz" instantly stops pain in corns, callouses and bunions. "Tiz" is glorious for tired, aching, sore feet. No more shoe tightness—no more foot torture.

have 200 million dollars invested in distribution equipment alone. That is tank cars, pipe lines, stations, trucks and wagons."

"To use alcohol in engines it will be necessary to raise the compression, because the heat value is less than of gasoline. That change will cost much money, for any engine change is expensive. Also it is hard to make alcohol fire as smoothly at low speeds as gasoline."

Mr. Moskovics believes the cost of producing the two fuels are comparable. Alcohol may be distilled from potatoes for about five cents a gallon. The production cost of gasoline is a little lower, he believes. "Distribution is the big cost."

"There will be this advantage for alcohol," he said. "It can be made at the breweries which are already distributed, and thus part of the delivery cost will be solved."

Farmer Can Get Fuel by Barrel

"If Ford develops his tractor to burn alcohol, distribution costs will not bother so much. The farmer can ship his fuel in barrels. It looks as if it might be a success in this particular."

Mr. Moskovics believes the peak in price of motor car parts has been reached nearly. Only iron is going up now, he said. Zinc, lead, tin, copper and brass demands from the allies seem to have reached the high point and the price is showing a downward tendency.

TEST OF GATTELLI BRAKE

Tests made recently in England with the Gattelli vacuum brake have shown it to be highly effective on light automobiles, the only essential to their use being the running of the engine. The brake is operated by means of a control valve, which creates a depression in the cylinder, several pounds lower than the outside atmosphere, the pressure of which forces the cylinder piston towards the back of the cylinder, thereby drawing on the brake. The strength of the braking effort is practically controlled by the speed at which the engine is running. The faster the motor has been running at the moment of braking, the greater the power exerted on the brake lever.

FARMERS, RANCHERS AND HOUSEHOLDER

CLASSIFIED MOTORING DIRECTORY

Keep For Future Reference

SHOPPERS' AND BUYERS' GUIDE

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Nervous Dyspepsia

The Modern Scourge and How to Meet it.

The speed at which we live, the hustle now so necessary for success have unfortunately a very adverse effect on the nervous and digestive systems of Canadians. The baneful results, increased lately to an alarming degree, often lay the seeds of more deadly trouble, but it will be satisfactory to learn of the ever-increasing popularity in the Dominion, of the Great British Remedy, Dr. Cassell's Tablets.

Dr. Ramsay Colles, J.P. of the City of Dublin, a man of high eminence in the scientific world, says:—"I have great pleasure in expressing my satisfaction as to the curative effect of Dr. Cassell's Tablets in cases of nerve troubles. From several cases which have lately come under my notice I am able to form the opinion that Dr. Cassell's Tablets constitute a safe and reliable family remedy, and appear to be specially effective for nerve and bodily weakness."

Dr. Cassell's Tablets are Nutritive, Restorative, Alterative, and Anti-Spasmotic, and of great therapeutic value in all derangements of the Nerve, Digestive, and Functional Systems in old or young. They are the recognised modern home remedy for Dyspepsia, Nervous Breakdown, Stomach Catarrh, Kidney Disease, Nerve and Spinal Paralysis, Infantile Paralysis, Rickets, St. Vitus' Dance, Anemia, Sleeplessness, Brain Fog, Headache, Palpitation, Wasting Diseases, Vital Exhaustion, Loss of Flesh, and Premature Decay. Specially valuable for Nursing Mothers and during the Critical Periods of Life.

Druggists and Dealers throughout Canada sell Dr. Cassell's Tablets. If not procurable in your city send to the sole agents, Harold F. Ritchie & Co., Ltd., 10, McCaul Street, Toronto; 1 tube 50 cents, 6 tubes for the price of five. Sole Proprietors:—Dr. Cassell's Co., Ltd., Manchester, Eng.

Dr. Cassell's Tablets

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And They Get Away With It

I'M SO GLAD YOU CAME HOME EARLY DEAR. IT'S SO NICE TO SEE YOU AND I HAVE SOMETHING TO SHOW YOU—

HUH! WHY ALL THIS JOY STUFF ALL OF A SUDDEN—

I'M ONTO YOUR GAME SHOOT!

PROMISE NOW NOT TO GET ANGRY IF I TELL YOU!!

LET 'ER COME I'M BRACED FOR IT!!!

WELL YOU KNOW THE MONEY YOU GAVE ME TO PAY OFF THE MORTGAGE ON THE OLD HOME WITH—

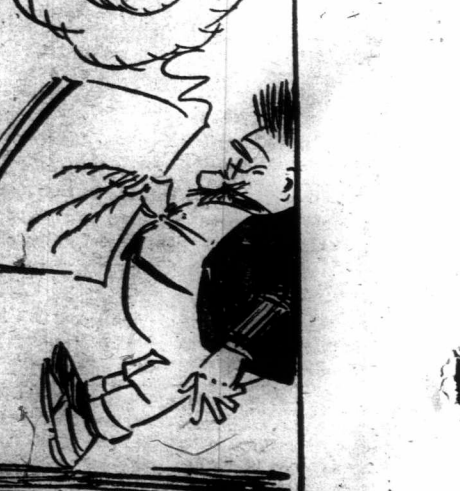
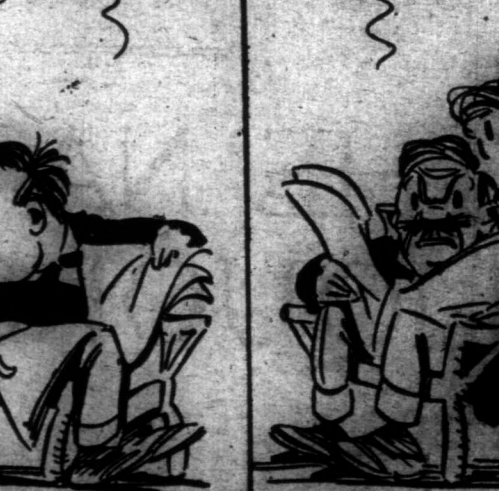
I BOUGHT THIS REAL FRESH EGG NECKLACE WITH IT INSTEAD!!

WELL—

WELL—

WELL—

WELL—



The Liv

THE possession of live stock more than \$4,000,000 is one of the Red Men of Canada. The 20,000 able-bodied adult Indians, would net them an average of \$100 each. Twenty-five years ago, the occupation of the Aborigines of the to gather weekly for their issue raised by white men, and contrary Department of Indian Affairs adjacent to the Reserves. Last year and consumed as food on Indian valued by the agents at \$307,880 of this was produced and sold. Out of an industrial population there are approximately 5,000 in the business of stock raising.

Figures supplied by the Indian Ottawa show these Red Men to 38,000 head of cattle. Milch cows head, one-third of which are in and young stock runs slightly the total, 28,953 head are Lakes 7,756; Alberta has 6,570, and the remaining 8,800, Ontario has and the Maritime Provinces 3,500.

In British Columbia Indians and more the value of their means of wintering cattle to advantage have made application for summer range. While the O ranges from 2,500 head and Kan the hands are small and the tributed. British Columbia Indians excellent foundation for an industry become great in their hands.

The cattle industry in Saskatchewan which there are great opportunities and on many of the reserves given by the department to export which is resulting in much profit. Saskatchewan Reserves offer pasture lands, much of which is a time when these Indians interest in cattle, but they are great worth of the industry. Cattle are not nearly as great a due to better care of the animals.

Exceptionally favorable grain Alberta and the natural fondness tribe for stock-raising are rather phenomenal success of their reserves. The Blackfeet, 6,570 head of cattle within the province; and the Blood band of reserve is situated between a bridge city and Macleod, have herd is of the best beef type some 70 in number, being Gal

Butter Made R

Ever get tired of the old cow brand of butter? By change, modern Alberta's goat is now coming on the market apparently coming to stay. Even said to be good for a profitable industry in goat and dairying, the best which have already been made.

W. A. Schroeder, of Macleod, has a herd of over 100 from which he is making goat butter and cheese every day. He is the first man in Alberta to make goat butter, and his output to the Macleod markets, where it is even terms with the other. Mr. Schroeder is a Swiss, carrying out in southern Alberta principles of domesticity that have for generations been successful in his native land. He feeds along the creek, both banks of the Old Man River town of Macleod, and there is a population of about 100 from which other herds in the area will probably be supplied.

Mr. Schroeder, in an interview, stated that he has an unsuccessful venture in and as his land is very hilly on up, he was advised to "I have made no mistake change," said Mr. Schroeder, are healthier than sheep, expensive to keep, because of brush and weeds in the field and they are not inclined around the barns and far as sheep do. Snow is no of their rustling, and they victims of coyotes.

The goat, however, does the same possibilities dairying as the cow. Schroeder explained, in November and milking in that month. Fresh milk April, when with yearly increase is one kid with old kids. This farmer has 15 goats all summer. The completed morning and two people in one hour giving as much as a gallon. Schroeder claims that goat milk will make as much as two gallons of cow's milk, buttermilk is richer, and it is claimed, contains which make the use of buttermilk almost unnecessary separator must be used for the milk and cream.