

How to Keep An Automobile Tuned Up.

When a car has been received new from the factory, every owner has a right to believe that it is tuned up to the highest point, that the electrical system is in perfect working order, the cylinders clean, the carburetor properly set, and the compression good.

After the car has been run, it is not unusual for the owner to notice a slight falling off in power. This commences gradually and is scarcely noticeable, but in time the owner awakes to the fact that the car does not possess anywhere near the amount of power it had when new. This should not be blamed to the machine, but rather to the owner himself in not looking after details.

Generally speaking, there are three great causes of loss of power in a gasoline motor; namely, poor compression, imperfect carburetion, and defective ignition.

In a gasoline motor, the charge of gas is drawn into the cylinder and compressed approximately to sixty pounds per square inch. If there is any leakage, such as by the piston rings, around the spark plugs, and past the valves, a certain amount of this charge will be forced out and lost, with the result that the power will be diminished.

In a well-made motor, the piston rings should remain tight for several seasons. Therefore, the owner should look to the valves and make sure that they are properly seated.

After the valves have been seated, if this does not remedy the trouble, the electrical system should be gone over thoroughly. The following conditions will affect the proper working of the electrical system: Weak batteries of accumulators; loose connections in any of the low-tension circuits; corroded or rusted terminals; insufficient contact at commutator; grounding in one or both circuits; improper adjustment of vibration; sooted or dirty plugs.

Every motorist using dry cells, or accumulators, should provide himself with an ammeter, or ammeter and volt-meter combined. The dry cells should be tested with the ammeter, and any cell falling under seven amperes should be rejected. The accumulator, or storage battery, should be tested with the volt-meter. A fully charged accumulator rated at six volts will show over six when charged. When the voltage falls to five and seven-eighths, it should be removed and re-charged, the usual cost being fifty cents.

A good accumulator, such as the Witherbee, No. 66, will run a two-cylinder car approximately one hundred miles.

All connections in the primary circuit should be carefully gone over and screwed down tight with pliers.

A rusted or corroded terminal will not give perfect contact. All connections should be clean, as rust, dirt, etc., increase the resistance in the circuit.

A short circuit is sometimes difficult to locate. If it occurs in the primary wiring, the batteries will be rapidly depleted. If the short circuit occurs on the high-tension system, no spark will jump at the plug. The common cause of short circuit is due to drivers carelessly leaving tools, such as wrenches, etc., on top of the batteries, or due to the breaking of the insulation in some wire.

The proper adjustment of the vibrator is of vital importance in the running of the engine. If the platinum points on either vibrator or adjusting screw become so pitted as to stick, no spark will jump at the plug. The vibrators should be frequently examined, and if the platinum points are not smooth or true, they should be dressed with a dead smooth file.

There are two methods of adjusting a vibrator, one by ear and the other by trial. When a car is new the vibrator is properly set, and gives a clear, distinct, steady buzz, hence it is an excellent plan to familiarize oneself with this sound, as future adjustments can be made with this in mind.

The majority of vibrators permit of two adjustments, the one regulating the distance between the platinum points, and the other the tension on the vibrator spring.

The distance between the platinum points when the trembler is pulled down on the core should be about one-thirtieth of an inch. Then the tension of the vibrator spring should be so varied that a clear, steady buzz is heard.

Another way to adjust the vibrator is to set the points about one-thirtieth of an inch apart, and start the motor. If the engine is of the single-cylinder type, open the throttle and adjust the tension on the vibrator so that the motor runs with its maximum speed. If of the two-cylinder type, hold down one vibrator and adjust the other so that that cylinder runs at its greatest speed. Then hold down the other vibrator and reverse the operation. A four-cylinder car can be tried by holding down the three vibrators and allowing the one-cylinder to work.

A common cause of poor ignition is fouling of spark plugs due to carbonizing of oil in the cylinders. If both vibrators are working properly, and still there occurs no spark, the plugs should be removed and examined. Plugs can be cleaned by soaking in kerosene and giving a scraping with a stiff brush. Extra plugs should always be carried, and when trouble of this kind occurs on the road, a new plug should be inserted.

The last general cause for loss of power is improper carburetion. The function of the carburetor is to fix in mixed and varying proportions such quantities of gasoline and air that the mixture shall be highly explosive. If the ratio between the air and the gasoline varies between too great extremes, or, in other words, if the mixture becomes too weak or too rich, the motor will either stop entirely or will fall off in power.

There are too many types of carburetors on the market to give explicit instructions in regard to adjustment. The following apply in general to all carburetors, and the following difficulties will affect their proper operation.

First: Sticking of float.—The float occasionally sticks, thereby allowing too much gasoline to enter, with the result that the mixture is too rich. A slight jar on the carburetor or tickling it in the usual manner will free the float.

Second: The floats, particularly of cork, sometimes absorb a certain amount of gasoline and become too heavy, and if made of metal an occasional pin-hole will manifest itself and the float will fill with gasoline. Both of these have the effect of increasing its weight, causing the gasoline to rise

too high and overflow the vaporizing nozzle. The remedy in this case is to lighten the float, if made of cork, and to solder the holes, if made of metal. Carburetor floats are usually set so that the gasoline in the vaporizing nozzle is from one-sixty-fourth to one-sixteenth of an inch below the top of the nozzle.

Third: Water in the gasoline is a common cause of trouble, and yet every motorist can protect himself against this trouble by seeing that all his gasoline is filtered through a chamois-skin. He should provide himself with a large funnel, in which is permanently fixed a good, close, fine-grained skin. While gasoline will filter through this rapidly, water will be entirely excluded. Fourth: Another common trouble in carburetors is with the connections between the carburetor itself, and the cylinder becoming loose. Any additional air entering will upset entirely the uniformity of the mixture. Even a small pinhole will cause surprising irregularities. These connections should, therefore, be periodically gone over to be sure that they are entirely tight.

The value of kerosene in the motor.—Few motorists appreciate how important it is to flush out frequently the insides of their cylinders with kerosene. There is perhaps no one thing that is so easy to do, and that will produce such good results.

It is not too much to say that the cylinders should be flushed out from once to twice a week. It is an excellent plan, when the motor comes in at night still hot, to fill the cylinders with kerosene, and allow it to remain in overnight.

If the motor has not been flushed out for some time, it will be found that a quantity of carbon, due to burning oil, etc., has collected inside the cylinder, and this should be removed.

If the engine is of the horizontal type, a small scraper could be made of one-fourth steel stock slightly bent over and flattened at one end, about one-fourth inch long and about three-eighths inch wide. This scraper will look somewhat like a small hoe; the total length should be about fourteen inches.

The inside of the piston and the walls of the explosion chamber are accessible through the spark-plug hole. After thoroughly scraping everything that can be reached, the pet-cock on the bottom of the cylinder should be taken out and as much as possible of the scraped-off carbon removed. After this, the cylinder should be filled again with kerosene and this allowed to drain out.

In a four-cylinder vertical motor, by removing the valve caps and putting the piston up as far as it will go, all the scraped-off deposit can be drawn off to one side and removed.

Carbon in the cylinders is injurious, first, because it becomes incandescent and pre-ignites the charge. Second, it is one of the most common causes of engine knocks. Third, by locating the combustion chamber it decreases the efficiency of the cooling system. If every motorist would take the pains to flush out his cylinders once a week, he would be well repaid by having a quiet, smooth-running motor.

A word about lubrication is not out of place here, but if every motorist understood just how vitally important it was to the life of his car, it would not be so generally neglected as it is by many automobilists. Briefly, the object of lubrication is to prevent friction and wear by imposing a film of oil between the bearing surfaces. This oil film prevents the metal surfaces from coming into actual metal-to-metal contact.

If you will look at oil through a very powerful microscope, you will see that it is composed of thousands of small globules, each one shaped like a steel ball. A properly lubricated bearing has distributed over its rubbing surfaces these small globules, which act as tiny wheels as if they were steel balls. The moment there is no oil and the two surfaces come in contact, they start to cut, and it takes an incredibly short time for an expensive bearing to be ruined.

As oiling is such a tremendous factor in the successful performance of a car, the oiling system should be frequently examined, the motorist being well repaid by saving himself expensive repair bills.

Sure Cure for Sciatica.

Sciatica is really inflammation of the sciatic nerve, the largest nerve of the body.

This passive inflammation is the product of a run-down condition, and in every case you may be sure the nerves are worn down fine.

The pain is the cry of the nerves for more food—for richer, redder blood. Rubbing on a greasy liniment can't help very much—you must treat the blood and rebuild the nervous system. This can be promptly done with Ferrozone.

No builder of nerve force is more powerful. No tonic so quickly fortifies the muscular system, imparts such strength, such endurance and vigor.

Any traces of Uric Acid and rheumatism are quickly driven out by Ferrozone. The lowered condition of the system is changed into a reserve of vigor that defies further attacks of Sciatica.

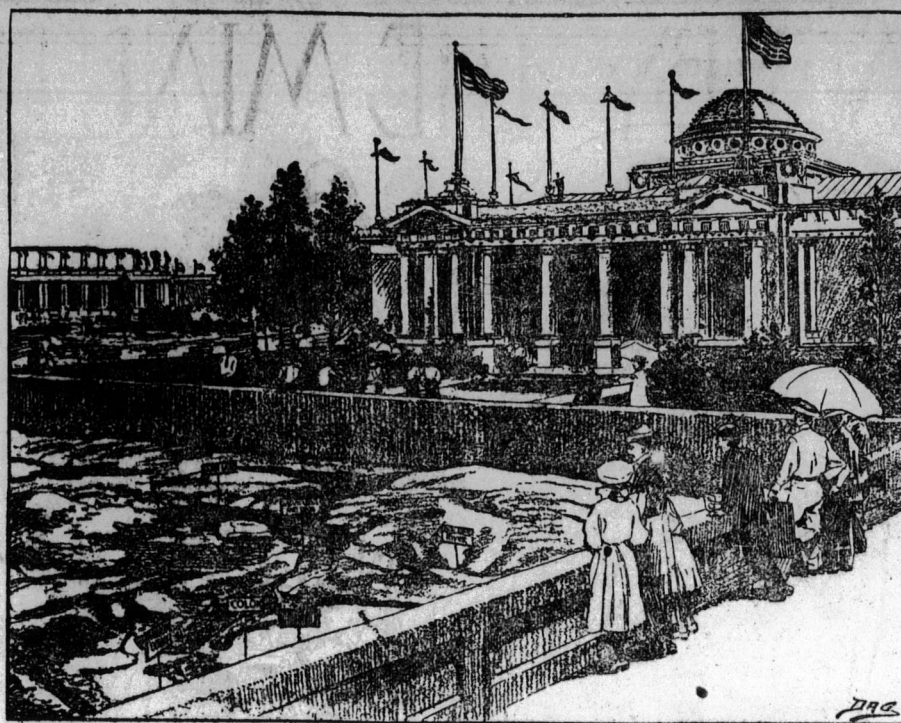
Marvelous in its reconstructive and rebuilding power, quick to give relief, absolutely sure to cure—where can you find a better treatment than Ferrozone? Sold by all druggists in 50c. boxes; try Ferrozone.

Eels to the Rescue.

A South American professor has discovered that the electric eel can really yield electric force.

He maintains, after experimenting to this end, that 100 eels will run a motor car for 24 hours, while 200,000 would carry a liner across the ocean. Most of us, however, would prefer to put our trust in gasoline rather than in eels. To say the least, a tank of flopping congers would assuredly be an uncomfortable item of motoring paraphernalia.

The small boy, who is always to be found in close proximity to a standing motor, would find it additionally interesting when he could prod up the wriggling "motive power" with a stick, and if one's eels were gradually abstracted en route by the factiously inclined, the last state of the motorist would be worse than the first.



MAMMOTH RELIEF MAP OF THE ISTHMUS OF PANAMA AND THE PANAMA CANAL AT THE JAMESTOWN EXPOSITION.

ONE of the many interesting exhibits at the now completed Jamestown exposition is a colossal map of the most interesting section of the Isthmus of Panama, showing the Panama canal and its approaches. It is laid upon the ground east of the War and Navy building and is made of cement and concrete, with water flowing in the various streams. The map attracts great attention from visitors because it gives such a clear idea of what the canal builders have to do and of how they are doing it.

Our Scotch Corner

A SCOTCH FISHERMAN'S WEDDING.

On the northeast coast of Scotland there are three great centres of the herring fishing industry—Aberdeen, Peterhead and Fraserburgh. The season usually commences about the middle of June and closes towards the end of August. To many fisher lads and lassies the two months that follow the great months of the year. Andrew, who has practically lived on board his boat for eight or ten weeks—who has spent most of his nights letting down the nets, and most of his day's shaking out of them the "caller herrin"—begins now to turn his thoughts to matters not less serious, but more sentimental. For some time he has been "walking out" with Barbara, a bonny, buxom fisher-lassie, who can mend nets and "redd" (unravel) lines, and put her hand to anything and everything that needs doing in a fisherman's cottage. There has been no formal engagement, such as is common in other communities; but there is an understanding which perfectly satisfies both parties. Although a man of few words, Andrew has made it sufficiently clear that some day he intends to give heed to the Scriptural injunction to leave father and mother and cleave unto his wife, and that that wife will be Barbara. He has had great good luck during the season. In his own language he has "deen aae" at ill, which means that he has done exceptionally well. Moreover, he has now several shares in the craft of which he is one of the crew; so, taking all things into consideration, he reckons he may safely indulge in the luxury of "a fireside" of his ain.

As a rule the Scotch fisherman has all the characteristic virtues of the Scot, and is abnormally shy and sensitive regarding matrimonial matters affecting himself. He would no more dream of going to the minister's alone, with the request that he should perform the marriage ceremony, than he would think of putting out to sea with one but himself on board the vessel. If he can get his father or a friend to undertake this delicate little duty on his behalf, he will gladly and gratefully welcome their kindly service.

A ministerial friend of mine who labored in the North of Scotland for a time has told me how on one occasion an intending fisherman bridegroom came to him accompanied by his father. The maid

showed them into the drawing-room. They did not rise on his entering the drawing-room. Dryly and drawingly remarking that it was "a fine evening," they sat nervously fingering their hats and casting significant glances at each other. Guessing their errand, my friend hastened to put them at their ease. He said how pleased he was to know there had been a prosperous fishing, and naively inquired if it were true that a successful season was usually followed by a rush to the matrimonial altar.

This gave the older man the opportunity he desired. He found his voice, and made known the purpose of his coming with a relief that was too evident to be concealed. It happened that there was just one difficulty. As is well known, it is customary in Scotland to have the wedding service in the home of the bride. The ceremony is a very simple one, and does not occupy more than a few minutes. In this instance the bride's home was insufficient to accommodate all who desired to witness the ceremony. As a way out of the difficulty, the fisherman asked if the service might be held in the kirk vestry. The minister was agreeable, but thought the church itself would be the more appropriate place. The fisherman muttered his thanks, but replied that if it were "the minister's will," he would much rather have the marriage done in the vestry. If there was one thing more than another that he didna care for, it was a gloverin' gairn' crowd. His laddie was a bit flighty (afraid) of the ceremony, and he hawped the minister widda be over hard on him. My friend was at a loss to know what was meant by being "over hard on him," and hinted as much to the fisherman. "Weel," he said in explanation, "what I mean is just this: When you ask John if he'll hae Kirsty to be his wife, dinna expect him to speak loud out (loud out); he'll just gie a nod, and his nod will be as guid as his word."

The invitations to a Scotch fisherman's wedding are not by card, but in nearly every case by word of mouth. Usually a large omnibus is hired to bring the guests to the wedding supper, as it is called. If there is room the supper is held in the home of the bride's parents, and there the guests sit down to partake of the strangely miscellaneous fare that has been provided. The chief dish is boiled salt fish, which is served with butter sauce, mustard and oysters. There are puddings and pies of various descriptions, and a bewildering assortment of buns, scortbread and scones. The beverages include tea, coffee and lemonade—seldom anything stronger. Habits of temperance and sobriety are becoming more and more general among the fishermen of the northeast coast of Scotland.

The supper is unconventional to a degree. Every one is full of happy and hilarious talk. The bridegroom is banteringly reminded that every penny bun will now cost two-pence; that he will have to give four bawbees to the kirk very Sunday instead of two; that there will be a growing need to "cast the net on the right side of the ship" every time and to enclose every time "a great multitude of fishes." Blushing, but proudly, he retorts that he "kens a'that, and that nobody need hae any fear."

When the marriage meal is over the tables are cleared, and there is music and dancing until the early hours of the morning.

The bride and bridegroom then retire to their own home. There is seldom any honeymoon. Not unfrequently the bridegroom has to rise after a few hours' sleep and sail forth once again to his toil upon the deep. As to the fisherman's wife, her lot is by no means easy. She has indeed to endure hardness. In addition to her everyday household duties, she is expected to mend the nets that have been torn; and it is part of her duty to unravel the twisted and knotted fishing lines. She has also to prepare and lay in a stock of salt-cured, sundried haddock and cod for winter use. Then, if she be given of habits of thrift, and have more than the ordinary share of energy, she will endeavor to increase her husband's somewhat precarious income by selling fresh or smoked fish from door to door.

Her lot approaches drudgery much more closely than does that of some who are evermore whimpering and whining about the toils and tasks that are laid upon them. But, in spite of all, she is happy. She has been brought up to the life, and prefers it to any other.—Scotish Review.

SMITH GOT WISE.

A sore corn is bad enough; but to have it stepped on was the limit. He invested in a bottle of Putnam's Pain-Ex Corn Extractor. Corns gone; enough said. Try Putnam's.

It appears that sometimes even the still, small voice of conscience is tongue-tied.



MULAI HAFID, HALF BROTHER OF SULTAN ABDUL AZIZ, WHO HAS HAD HIMSELF PROCLAIMED RULER OF MOROCCO.

MULAI HAFID, pretender to the Moroccan throne, who was recently proclaimed sultan at Marakesh, has raised quite a formidable army and is a decided menace to the rule of Abdul Aziz. The real sultan's troops are none too loyal, and a plot to assassinate him was recently discovered in his own camp.

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The Way It Didn't Happen.

"Mother," said little Willie Jones, "If there's no work to do, I'd like to join the other boys and go swimming, too."

"There's not a bit of work to-day," said Willie's mother kind; "It's useful to know how to swim, so go—I do not mind."

"Father," said Willie to his pa when he had older grown; "I'd like to smoke, and wish that I a briar pipe might own."

"And so you shall," said Willie's pa, "From of your father, proceed the conditions for inspection will be received from a brother, or sister of an intending homesteader."

An application for entry or inspection made personally at any Sub-agent's office may be made in person by the applicant, or by the office of the local Agent or Sub-agent. Entry by proxy may, however, be made on certain conditions for inspection will be received from a brother, or sister of an intending homesteader.

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YNOPSIS OF CANADIAN NORTH-WEST HOMESTEAD REGULATIONS.

ANY even numbered section of Dominion Lands in Manitoba or the North-West Province, excepting 4 and 8, not reserved, may be homesteaded by any person the sole head of the family, or male over 18 years of age, to the extent of one-quarter section, of 160 acres, more or less.

Application for homestead entry must be made in person by the applicant, or by the office of the local Agent or Sub-agent. Entry by proxy may, however, be made on certain conditions for inspection will be received from a brother, or sister of an intending homesteader.

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The Motorist's Ideal.

Are you, swiftly shooting star, But the headline on the car Of some airship in its flight, Dashing thus along at night? Is there nothing in your way—No policeman there who may Stop you when you thus exceed Every known legal speed? If there's not, and you were mine, Many a fine, hilarious time I should have behind you there, Sailing gaily through the air. But when you go out of sight, Leaving naught but blackest night Where your bright speed last was seen, Does that mean the best of cheer? Is all gone, and you'll be there Till someone with some to spare Happens on that lonely route Where I erstwhile saw you shoot, But where now you seem to be Stranded 'midst that cloud I see?—The Bohemian.

KNOWLEDGE NOTES.

Of the world's population, there are 64 to the million who are blind.

The flourer is said to deposit 7,000,000 eggs in the course of a year.

Germany sends 29,000,000 feathers per year to England for millinery purposes.

The growth of girls is greater in their fifteenth year; of boys in their seventeenth.

The average cost of maintaining a prisoner in an English prison is about \$125 per year.

Squares, triangles and similar implements used by draughtsmen are now made of glass.

The floor space of St. Peter's, Rome, is 227,000 square feet, the greatest of any cathedral in the world.

The swiftest river in the world is the Sutlej, of British India, which in 180 miles has a descent of 12,000 feet.

Savings banks are established in 228 schools in Scotland. There are 35,712 depositors, with \$48,990 to their credit.

When the herring fishery season is at its height something like 5,500 or 6,000 miles of nets are set nightly in the North Sea.

Some European savants have discovered that one-half grain of silver fluoride in a quart of water effects complete sterilization. Experiments were made with complete success on sewage water infected with various injurious micro-organisms, including those of typhoid.

Before making application for patent the settler must give six months' notice in writing to the Commissioner of Dominion Lands at Ottawa, of his intention to do so.

SYNOPSIS OF CANADIAN NORTH-WEST MINING REGULATIONS.

COAL—Coal mining rights may be leased for a period of twenty-one years at an annual rental of \$1 per acre, or more than 2,500 acres shall be leased to one individual or company. A royalty at the rate of five cents per ton shall be collected on the marketable coal mined.

QUARTZ—A person eighteen years of age or over, having discovered mineral in place, may locate a claim 1,500 x 1,500 feet. The fee for recording a claim is \$5. At least \$100 must be expended on the claim each year or paid to the mining recorder in lieu thereof. When \$500 has been expended or paid, the locator may, upon having a survey made, and upon complying with other requirements, purchase the land at \$1 per acre.

The patent provides for the payment of a royalty of 2% per cent on the sales.

Placer mining claims generally are 100 feet square; entry fee \$5, renewable yearly. An applicant may obtain two leases to dredge for gold of five miles each for a term of twenty years, renewable at the discretion of the Minister of the Interior.

The lessee shall have a dredge in operation within one season from the date of the lease for each five miles. Rental is \$10 per annum for each mile of river leased. Royalty at the rate of 2% per cent, collected on the output after it exceeds \$10,000.

W. W. CORY, Deputy of the Minister of the Interior.