The Automobile

SPARK TACTICS MEAN MU CH TO RUNNING ENGINE.

Ignition, compression and gas in the cylinders are required to start an automobile engine. The first of these is obtained by means of an electric spark. The carburetor receives the gasoline from the fuel tank, vaporizes it and mixes it with air to provide the oxygen necessary for rapid combustion. This mixture is drawn into the cylinder and compressed for the purpose of increasing the power. This compressed charge is ignited. As it burns, heat is generated which gives a high pressure on the inside of the cylinder, forcing the piston out and turning the crankshaft, which drives the auto. To obtain the most efficient operation of the engine the spark should give the maximum pressure in the cylinder when the piston is in the best position for turning it into useful work.

The gas is drawn into the cylinder by the piston moving out. The piston moves back in to compress it and the pressure of the explosion forces it out again. If the spark should occur while the piston was moving into the cylinder on the compression stroke, the gas would be ignited and a pressure generated that would force the piston back out of the cylinder before the crank had reached and passed the dead centre point. This could cause the engine to kick back. This is especially true if the engine is running slowly. Should it be running at a high rate of speed there might be sufficient power stored in the flywheel to overcome this back pressure. Thus the engine would run in the proper direction although with loss of power.

If the spark occurs after the gas has been compressed and the piston has started to travel out of the cylinder and the power stroke has been partly completed this will also decrease the power delivered by the engine. Most of such loss consists of unburned gas which goes out through the exhaust valve and completes its burning in the muffler.

TIMING DEVICE PROVIDED.

There is a particular point in the travel of the piston where the spark should occur in order to give the best results. This point changes as the engine speed changes. In order that the spark may occur at the proper time in each cylinder an ignitor or ignition timing device is provided.

The ignitor is equipped with a pair of interruptor points, one fixed and the other movable. The movable one is operated by a cam which is driven through suitable gearing by the crank shaft of the engine. The spark is obtainable by bringing the movable point in contact with the fixed point and then separating the points. The spark occurs as the points separate.

The ignitor also has a distributor which directs the sparks to the different cylinders in the proper order of their firing. To provide for changing the time at which the sparks occur in the cylinders, the ignitor is arranged so that the interruption points may be made to open earlier or later in the stroke of the piston. This action is called advancing and retarding the spark. It is controlled by the operator through a small device called the spark lever.

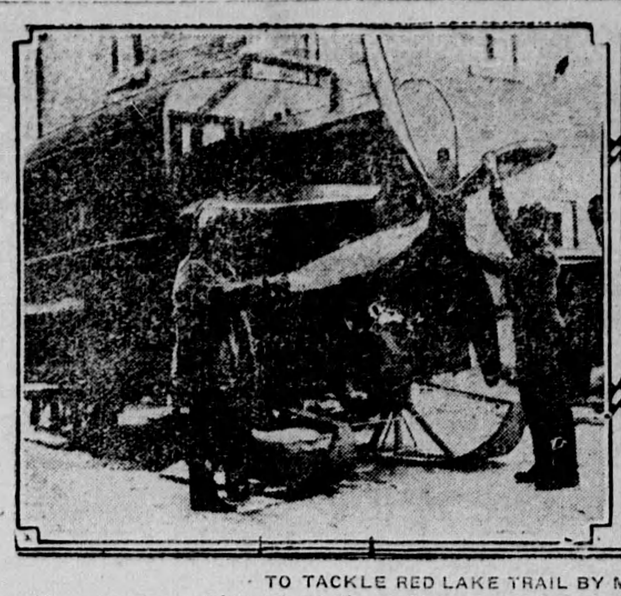
GAS BURNS RAPIDLY.

When starting the engine this lever should be placed in the retard position to insure the spark occurring after the crank has passed the top head centre and the piston is ready to travel out on the power stroke. As soon as the engine attains speed this spark lever should be advanced so that the spark will occur early enough to get the gas burning and produce the full pressure at the beginning of the power stroke.

It will be understood that the gas ignites and burns very rapidly, so that the explosion would seem to be instantaneous. However, there is a fraction of a second consumed in getting the gas fully ignited. The piston of the fast-running engine would travel several inches in this time.

In addition to the speed of the motor, the amount of gas being fed to it affects the position at which the spark should occur. The greater the quantity of gas taken into the cylinder the more retarded the spark should be. It is well to experiment with the spark advance lever. Advance it to a point where the engine knocks, indicating loss of power, then retard it just enough to remove the knocking.

Because present-day battery ignition systems require a wide range of advance and retard to cover all running conditions an automatic spark advancing mechanism is usually provided. This is operated by the engine, in addition to the hand spark lever. This device makes it unnecessary to keep shifting the hand lever for each change in engine speed.



TO TACKLE RED LAKE TRAIL BY MOTOR SLED.

Above are shown Johnny Janes, the well-known explorer, prospector and northern traveler, of Toronto, and his aeroplane engine driven motor sleigh which he hopes to put on the Red Lake trail in the near future.

"Consider."

Behold, O man, that toilsome pains dost take,
The flowers, the fields, and all that pleasant grows,
How they themselves do thine ensample make,
Whiles nothing-envious nature them forth throws
Out of her fruitful lap; how, no man knows,
They spring, they bud ,they blossom fresh and fair,
And deck the world with their rich pompous shows;
Yet no man for them taketh pains or care,
Yet no man to them can his careful pains compare.

—Spenser.

"Coins" Made of Ice.

A French electricity undertaking was convinced that one of its consumers was obtaining electricity for nothing through a francin-the-slot meter, but inspectors could not discover how the electricity had been obtained.

In despair, the consumer was offered a monetary reward, when he confessed that he had frozen water in moulds to the diameter and weight of the coin normally used. After a short time in the meter the ice melted and left no trace.

Why Water?

"Phwat are thim buskets for on the chist in the hall?" asked one Irishman of another.

"Can't ye read? It says on them: 'For Fire Only.' "

"Thin why do they put wather in thim?"

Britain's Reforestry Plans.

Britain is replanting the forests it lost during the war. William Ling Taylor, in a paper read at the last meeting of the British Surveyors' Institute, said the ultimate aimed at was the affortstation of 1,770,000 acres of land in Britain not suitable for other cultivation. The total ordinary employment provided in the new forests approximated 2000 men throughout the summer months and over 3000 in the winter. The influence of foerstry on rural unemployment was appreciable, but its growth was dependent upon a steady adherence to a settled policy.

Economical.

Jock noticing that Sandy was smoking a rather superior brand of tobacco, producing his pipe, scraped the inside with his knife, tapped it on his boot, then on the palm of his hand, but to no effect.

"Hae y got a match Sandy?" he asked.

"Aye," said Sandy, passing one match.

Jock began to act desperate, "Sandy, I do believe I left my 'bacca home."

"Oh," said Sandy, "then ye winna want that match."

Th Right Time.

There is always some work, sweetheart . . . for every season, not to be done before or after. That is why we need never be afraid of growing old.—Elizabeth Charles.

No Salary for General Booth.

General Booth, world head of the Salvation Army, receives no salary from that organization, friends providing him with an income.

The Game of Life.

I saw a game played with a crowd of boys;
Men gave them wire and string and nails and tin
And said: "A prize to him who best employs
These useless things and brings his products in."
Then from these trivial bits grew ships a-sail-
One lad the model of a castle made
And there I saw us all, who win, who fail,
Although 'twas but a game the youngsters played.
Life gives us bits of joys and bits of cares
And bids us fashion something as a whole
We choose our own design, and if it bears
The stamp of merit—God rewards the soul.

—Edgar A. Guest.

A Tree That Bore Fruit Early.

A Persian emperor when hunting saw a very old man planting a walnut tree, and, going up to him, asked him his age. The peasant replied, "I am four years old."

The emperor rebuked him for making such an answer, but the man replied, "You censure me without cause. The wise do not reckon that time which has been lost in folly and the cares of the world. I consider my real age to be that which has been passed in serving God and discharging my duty to society."

The emperor, struck with the singularity of the old man's remark, continued to talk with him. "Thou canst not live to see the trees you plant come to perfection," he said.

"True," replied the man, "but, since others have planted that we might eat, it is right that we should plant for the benefit of others.

"Excellent, old man!" said the emperor, and he gave the peasant a purse full of gold pieces.

The peasant bowed low and said, "O king, other men's trees come to perfection after many years, but mine have borne fruit as soon as planted."

"Bravo!" cried the king, and he gave the old man another purse of gold, whereupon he said:

"The trees of others bear fruit only once a year, but mine have yielded two crops in a day!"

"Delightful!" said the emperor and gave him a third purse, after which, putting spurs to his horse, the monarch withdrew saying:

"Good folks, I dare not stay longer, lest their wit should exhaust my treasury!"

The Moors.

For the moors! For the moors! where the short grass
Like velvet beneath us should lie!
For the moors! For the moors! where the high pass
Rose sunny against the clear sky!

For the moors! where the linnet was trilling
Its song on the old granite stone,
Where the lark, the wild skylark, was filling
Every breast with delight like its own.

—Emily Bronte.

LOOK OUT FOR PNEUMONIA

Pneumonia, like tuberculosis, may be classed as a house disease. During the open air season, in both cases and deaths, pneumonia reaches its lowest ebb. When the cold weather ushers in the season in which people are compelled to live indoors, pneumonia cases and deaths begin to increase month by month. Only when the open air season again comes around do they begin to decline.

While this disease was well-known to the old Greek physicians it has continued through all the centuries to be one of the most dreaded and fatal of all diases. While there is now a serum that gives good results in the treatment of certain types of pneumonia—no preventive has yet been found that will confer immunity to this dread disease.

In Canada about 6,000 persons die each year from pneumonia. This fact alone indicates that pneumonia is a disease which we must treat with a wholesome respect, and one against which we must be continually on guard.

Pneumonia is often referred to as an impure air disease. By this we mean that close confinement in overheated, badly ventilated houses, offices and workrooms, lack of exercise and improper nutrition are most common predisposing causes. Influenza or the common cold and measles are the diseases which are the most frequent forerunners of pneumonia. The poisons of influenza or these other diseases weaken the body and thus prepare the way for the germs of pneumonia to attack and get in their deadly work.

Extremes of temperature, either cold or hot, lower the resistance of the individual to pneumonia infection. Overheated air which is always lacking in moisture, dries the lining of the air passages and so produces those conditions which invite not only pneumonia but other respiratory diseases as well.

The observance of a few commonsense rules of living will go a long way in strengthening the fortifications against attacks of pneumonia which each winter takes such a heavy toll of life.

Remember that pneumonia is very easily caught and that there are carriers of this disease just as there are of other diseases.

Do not neglect the so-called "common cold" for in so doing you may be neglecting the forerunner of an attack of pneumonia.

These precautions are, after all, only the commonsense rules of healthy living, but their observance will do much to prevent an attack of pneumonia.

How to Avoid Pneumonia.

Be regular in your habits of living. Eat nourishing, easily digestable food. Keep the bowels well regulated. Get eight hours' sleep every night with the berroom windows open.

Avoid undue and prolonged exposuse to wet and cold.

Get regular exercise in the open air each day.

Dress so that you are comfortable whether indoors or out. Avoid extremes in the matter of clothing. Too much clothing may prove quite as harmful as too little.

Keep the living room at a temperature not exceeding 70 degrees. Keep the bedroom windows open.

Keep the feet dry and warm.

Avoid coughers and sneezers.

Read Meters.

Viola—"Oh, he's a poet. I'm sure. He says he's an expert at meter reading."

May—"Poet nothing. He works for the gas company, my child."

Australia's First Rabbit.

The first person to introduce rabbits into Australia, Mr. John R. Collison, has died at the age of eighty-five. Mr. Collison was a great traveller in his early days, and owned a large ranch in Australia.

The credit of introducing rabbits is a doubtful honor, for its effects have resulted in a loss of $100,000,000 worth of crops a year. $5,000,000 a year has been spent on efforts to exterminate the rabbit, and 16,000 miles of wire netting erected as protection.

Although ferrets were introduced to kill the rabbits they unfortunately developed a taste for poultry. Foxes were tried, but they made friends with the dingoes—bush-dogs—and their progeny created havoc among the sheep. Rabbits infested with poison virus have been released among their fellows, but the poison did not work.

Altogether the effects of Mr. Collison's act have proved expensive to the country.

Answers.

What is heaven?
A state of mind,
The sunlit way,
The leaves at play,
Or being kind.

What is God?
Power over all,
And peace in prayer,
Light everywhere,
The poplar tall.

What is death?
An opening door,
A dream fulfilled
That long has thrilled
Ask them—no more.

—George Elliston.

France makes nearly 26,000,000 pairs of gloves yearly, and of these 18,000,000 pairs are exported.

Last-Born's Luck.

Candlemas Day, February 2nd, was formerly known as "Cradle-Rocking Day," from an ancient custom once widely prevalent, and not yet wholly extinct.

This consists of rocking in church the most recently born baby in the parish—symbolising the presentation of the child Christ in the Temple.

The ceremony is regularly performed on this day in the parish church of the Nottinghamshire village of Blidworth, amongst other places, the cradle with the last born baby being placed inside the altar rails, and solemnly rocked by the vicar while dedicating the child to God.

Candlemas Day means the feast, or festival, of the candles, the title being reminiscent of the times when churches used to be specially illuminated with candles on this anniversary, in commemoration of the purification of the Virgin Mary, and the hailing of the infant Christ as a "Light to lighten the Gentiles."

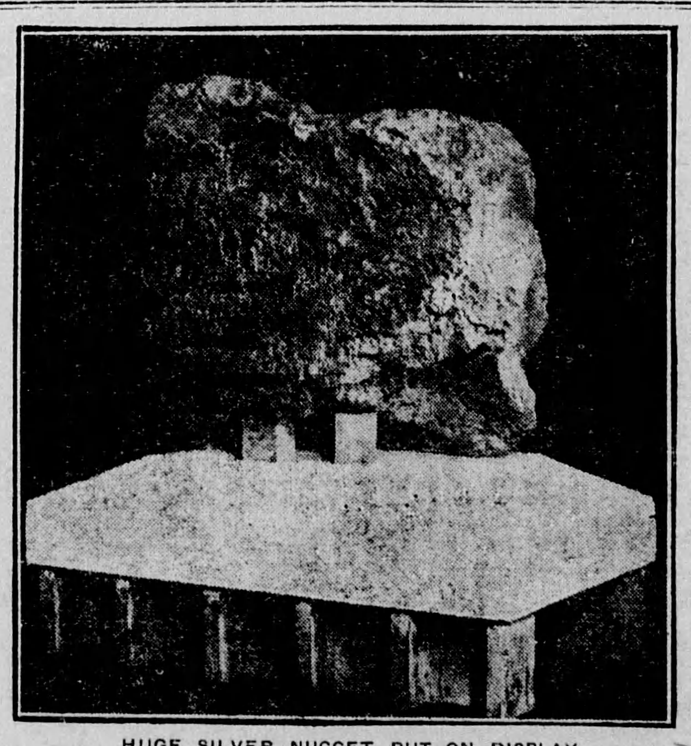
The widespread belief that Christmas decorations must be taken down at latest on Candlemas Eve, or ill luck will follow, has its origin in this festival. Obviously, it would be highly dangerous to allow dried-up branches of holly and evergreens to remain hanging in churches in close proximity to some hundreds of lighted candles.

Latent.

And under every common sense
That doth its daily use fulfill,
There lies another, more intense,
And beauteous still. . . .

The light which to our sight belongs,
Enfolds a light more broad and clear;
Music but intimates the songs
We do not hear.

—Alice Cary.



HUGE SILVER NUGGET PUT ON DISPLAY

Above is shown the huge silver nugget which has been mounted in the front corridor of the parliament buildings for visitors to see. It is a product of the Keeley Mine and has just been returned from Wembley, where it was on display as the largest and most valuable single piece of silver ore ever produced in the British Empire. It weighs 4,402 pounds. When the government bought it, the purchase price, at 64½ cents per ounce for silver, was $15,616.

MUTT AND JEFF—By Bud Fisher.

A Nifty Chance to Square Accounts, Thought Jeff