The AUTOMOBILE

KNOWLEDGE OF ENGINE AIDS IN CARE OF AUTO.

What makes an automobile go? Well, the engine has a good deal to do with this matter. But what makes the engine go? That is an important story for the motorist.

If the automobile owner has a knowledge of the functioning of the engine it will enable him to picture in his mind what is going on under the hood of his car. This knowledge should increase his pleasure and enable him to take more intelligent care of this machine both as to caring for its needs and as to the matter of overworking it.

Then, too, this knowledge will make it possible for him to have an inkling at least of what any trouble is about when the thing doesn't seem to work right.

The gasoline engine which is used in 99 per cent. of all automobiles in this country in its simplest form consists of a cylinder like a stovepipe. Inside of this slides a plug of metal shaped like a drinking glass enlarged, which fits the interior of the cylinder snugly.

This piston is connected to crank by means of a connecting rod, which turns the back-and-forth, or reciprocating motion of the piston into a rotary motion. This is the motion transmitted to the rear wheels.

Automobile engines are made up of from one to twelve of these cylinders coupled together. They are most usually found in combinations of two, four, six, eight and twelve. The original motor car engine was one cylinder. As greater power and flexibility were desired, more cylinders were added. To-day the six-cylinder engine is the most popular type.

If the operation of the single cylinder is understood, the action of the twelve-cylinder engine may be readily pictured as each of the twelve cylinders does the same sort of work, but each does it at a different time.

To cause the engine to generate power a mixture of gasoline and air in the form of a vapor is fed into the cylinder above the piston. To provide this mixture a carburetor is attached to the engine and a valve is furnished which opens to permit the mixture to enter at the proper time. This valve is opened by a cam which is driven by a suitable gearing attached to the crankshaft.

This mixture is compressed in the cylinder and then ignited or set on fire by means of a spark which occurs at the spark plug. When the mixture is ignited it burns rapidly and produces heat. This in turn causes pressure on the piston forcing it to slide in the cylinder and through means of the connecting rod turn the crank.

—AND THE WORST IS YET TO COME

OPEN LETTERS TO A FARMER

By Rev. M. V. Kelly, C.S.B.

(Continued from last week)

IV.

Veneer.

I have one grievance against you and most of your fellow-farmers. It respects your own attitude towards your social position. I fear it all the more keenly because I fear its tendency to turn you and your families from the farm. You are altogether too much given to look upon your position as one of inferiority to most others. Instead of priding yourselves in belonging to a profession which is at once the most noble and most necessary, you seem to feel that a change from it to almost anything in a town or city is a promotion. Your neighbors' boy or girl, who is on the way to a professional or business career, is supposed to be acquiring a social status away beyond your aspirations. The lawyer, the merchant, the banker, the teacher, even the bank clerk or civil service copyist, you seem ready to admit is privileged to look down on you and yours. Parents who keep their children at school, allowing them an opportunity to fit themselves for a professional career, are considered entitled to the highest commendation. They are "doing something" for their boys and girls; they are helping them to make something of themselves." They are "bettering their position" in contriving to get them off the farm. And all this is so much the more remarkable since you must realize that a greater all-round ability is required to fill your position than to fill theirs. Is it not simply a fact that a large proportion of that army of store clerks, book-keepers, business agents, civil service clerks were encouraged to leave the farm because of their failure to make good there? And of those who gave promise of real ability in some clerical or professional occupation, how many measured up to the average farm boy in the practical affairs of life, or could have taken his place there? There are hundreds of thousands ekeing out a livelihood in one or other of these occupations who would be face to face with dire starvation were they to attempt to manage a farm. On the other hand, have you ever known a successful farmer who could not have earned a very respectable income at something else?

When this failure to appreciate your own work and the importance of your position as farmers is so general, is it at all surprising that young people grow up with an ambition to embark in some other pursuit. At the present time, we hear many explanations for the tendency to abandon the land. Daily papers, weekly magazines abound in them; the subject furnishes endless topics for ambitious platform speakers. Generally they are beside the subject. They fail to discover the real cause. If you are making accurate observations among your neighbor farmers, I have no doubt you will admit that the real cause, the most common cause, lies here—in the fact that the farmer's family oblige themselves to assume that their position is an inferior one.

Now why does this sentiment so generally and so forcibly prevail? What do you farmers and farmers' families see in town residents to convince you of their superiority? Have you ever known them to do anything very extraordinary, anything far greater than you could ever hope to do, because they were born in a town or have lived some time in a town or city? Do you actually believe that they are gifted in some inimitable, unimaginable way? If their ways of acting and appearing are somewhat different from yours, why conclude that you are inferior? What is it in them that you are always taking off your hat to? Try to answer this question thoroughly. I challenge you all who give it a moment's thought to say if it is not simply veneer—because they are polished up in exterior appearance you go on bowing and scraping to them, whether or not there is anything beneath their appearance. It is announced that a new bank clerk has come to town. When the whole truth is known, his father's influence perhaps secured the position because he had tried and failed in almost everything else; but he dresses beautifully and bows gracefully and you are flattered to death in having made his acquaintance or because he condescends to notice you.

It happens that the labor such are engaged in will not harden their hands. They are indoors and their complexions escape being tanned in the sun. They probably spend more money on cosmetics and more time applying them than you. Perhaps also they have acquired some of the smart expressions of the passing hour and exhibit an elegance in dancing the country person has not fully learned to imitate. I ask you to say, honestly, whether it is not just this equipment which makes the impression, and causes you all to feel embarrassed in their presence.

What a tragedy that your boys and girls should allow themselves to be deceived by such trifling vanities, by such empty nothings; that the young people who are the one persevering hope of the nation—the young men and women who are earnest, capable, endowed with sterling character, full of promise, sons and daughters of the men and women who have made the country what it is—should fail to recognize their own true greatness, should allow their nobler aspirations to be forgotten, should fail to discover the value of the state and occupations which made them the people of worth that they are, and should fall down in adulation before those whose position enables them to add a few frills to their outward appearance! Is it not really time that the farming community had learned to assert themselves?

(To be continued).

Queer, How Mothers Are!

Queer, isn't it, how mothers are?
How peacefully content seem they
Just to sit back, and day by day,
Let others go the joyous way;
Let other people travel far,
Let others have their smiles and fun,
Help others get their labors done,
Ready to comfort any one.
Queer, isn't it, how mothers are?

Queer, isn't it, how mothers are?
Not caring as to what they wear,
Although they are so fair, so fair.
But how they work, and how they care,
And bring some little jeweled bar
For daughter's hair! How long they'll sew
To make her dress "just right, you know,"
And fit it, then, with eyes aglow!
Queer, isn't it, how mothers are?

Queer, isn't it, how mothers are?
How they will soothe and nurse the pet!
How sweet they make it to forget!
How can they smooth each little fret,
Each ugly little care and jar!
How, in whatever thing they do,
The heart of them shines out anew,
Forgetting "I" and thinking "You!"
Queer, isn't it, how mothers are?

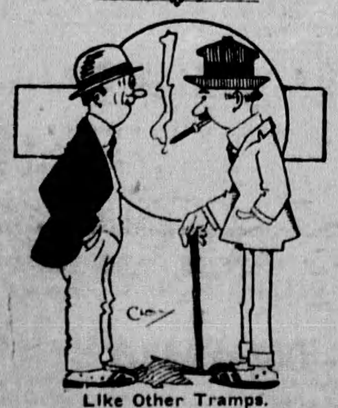
—Miriam Teichner.

Land of Flying Animals.

In Australia there are at least twenty species of animals which are aviators. Among them are flying squirrels, flying opossums, flying mice, and even flying bears.

The name which applies to them all is "phalanger." This means that they have, extending from the front to the hind legs, a membrane which enables them to float in quite a graceful way from tree to tree. They are not really flying animals, but gliders.

The flying squirrel is said to be the most beautiful mammal in the world. It is odd that in the land where many animals fly, birds often cannot fly at all. Both the emu and the cassowary are practically wingless, and have to depend upon their long and strong legs to escape from their enemies.



Like Other Tramps.

"All laws won't work."
"No—some are 'bum' laws."

Conquering Mount Everist

Man is Again Measuring His Strength Against the Blind Forces of Nature. This Year Will Witness the Third Attempt to Scale the Peak of the World.

The corners of the world have been drawn together. Adventurers have reached both Poles. The sandy deserts are fast surrendering their secrets. To Timbuctu across the great Sahara is a mere week-end tour for caterpillar-wheeled motor-cars. Only the great Himalaya, the highest mountain range in the world, still calls in unconquered defiance.

This year Mount Everest, 29,002 feet high, is marked for a strong assault by a British expedition organized by the Alpine Club and the Royal Geographical Society.

A Legend of the Mountains.

Mount Everest soars so high—assert the Tibetans—that a bird flying across the white ridges is inevitably struck blind. The Chief Lama of the Rongbuk monastery once raced the prince of evil to the summit. The Lama did not suffer from blindness or breathlessness; a friendly sunbeam carried him, and, from the peak, he saw his competitor still struggling among the glaciers.

The mountaineers of 1924 cannot follow the Chief Lama's methods. They must camp on ice and crawl up snow walls against pitiless gales. The long route from Darjeeling is a test of fitness. The first stage is from Darjeeling to the bridge over the Teesta. Then, up and down, the path struggles through a magnificent defile, on either side of which huge waterfalls drop down creeper-hung cliffs, while deep pools bar the way and have to be crossed by rickety suspension bridges.

At the Base Camp.

Mules carry the expedition's equipment to Chumbi. Beyond that, transport is usually on yaks—a kind of oxen—and donkeys. In 1922 General Bruce was able to persuade the Chumbi men to travel on to Phari, and so eke out the available beasts of burden. Some 300 animals carried loads up to the Rongbuk base-camp.

From Chumbi the track rises in a great sweep to the Tang La, or pass, 15,200 feet above the sea. It was here that the last expedition almost met with disaster in a fearful snowstorm. It is almost as high as Mont Blanc, and marks the transition from humid India to dry and sterile Tibet. Henceforward the only beauty is in the air, in the shadow effects of blue and purple on distant mountains, in the iridescent splendor of the yielding sands which cover most of the dreary way. And every day the wind growls and howls more bitterly.

About Kampa, quite a big town, there is a view of Everest, still fifty miles away, but in the clear air seeming not half that distance. From Shekar, the last point where food supplies in bulk can be arranged, the march proceeds across subsidiary ridges and passes to the Rongbuk valley, which receives the snow rivers from the great peak. Here, at 16,800 feet above the sea, 1,000 feet higher than Mont Blanc, is the base camp.

Monsoons the Greatest Danger.

The forward pilgrimage passes on to moraine—stones on glacier—and then, above a third camp, crosses 20,000 feet. The North Col camp, from which the main attacks will be made, is 23,300 feet up.

This year the climbers may assail the mountain from different points; the long, rough walk up the East Rongbuk glacier may be abandoned for a more direct climb to the North Col from Rongbuk itself. Acclimatisation to high altitudes goes on apace, even at 20,000 and 23,000 feet. In 1922 Colonel Strutt, who was not considered perfectly fit for severe climbing, stayed five days at the 23,000 feet camp without ill effect.

Young climbers have been chosen for this mighty expeditiion. Past experience proves that, after a man is thirty-five, his body does not easily meet the conditions of hard work and low oxygen supply.

Gas cylinders will be used again. On the way to the peak, camps at 27,000 and 28,000 feet may be made. The party now attacking Everest is the strongest yet sent out. Messrs. Leigh-Mallory and Somervell, who made the great "natural" climb of 27,000 feet, are again to the front. The new men have shown power to withstand exposure and do hard labor under difficult conditions.

Given good weather, the peak will certainly "go." If the monsoon again interferes there may be some exciting moments before the whole party is off the mountain. Everest is no cub to be climbed and left in a couple of hours. A monsoon storm may rage over a stretch of mountain equal to four days' hard travel! In this lies the greatest danger.

Driven Back by Storm.

This is the third expedition towards Everest since the Dalai Lama at Lhassa granted passage to a British climbing party. In 1921 the work was reconnaissance, rather than attack. The northern face of the mountain was then unknown. Messrs. Leigh-Mallory and Bullock did much high exploration. They found the Rongbuk glacier and its branch, the West Rongbuk, both of which end against the sheer snow wall of the great mountain.

A rough survey from this information suggested that a third glacier to the east might lead up to an easy ridge. To reach this the expedition retired to the Kharta valley during the first monsoon storms, then marched westward.

In this manner the East Rongbuk glacier was disclosed. For the first time a camp was made at 23,000 feet above sea level, on the snow ridge which gives access to the central peak of the mountain. Storm, however, defeated the party. A terrible blast made further upward exploration impossible. The net result of 1921 was the discovery of a new route, and a bivouac at higher level than man had yet reached.

Chances of the Ascent.

The expedition of 1922 was commanded by General Bruce. Its main base was in the Rongbuk glacier, from which three camps led up to an advanced base beneath the 23,000 feet North Col. Tents were fixed among the snows in the col, and porters and climbers remained days together in the thin air. The actual assaults were two in number. The first reached nearly 27,000 feet, and was in an excellent position for victory when the climbers had to retreat. Mr. Morshead had been left, ill and frostbitten, in a bivouac at 25,000 feet, and he had to be brought to camp by nightfall.

The second party used oxygen to strengthen the upper air. The cylinders were not entirely a success, but the climbers got to the 27,250 feet level and were within half a mile of the peak before they had to return. The ground in front seemed difficult, and the weather was getting worse. The climbers—two Europeans and a Ghurka non-commissioned officer—had already been storm-bound two nights at 26,000 feet above sea level.

A third assault broke down. The monsoon breath had softened the snow far down the mountain, and below 23,000 feet a party of coolies were overwhelmed in an avalanche. Seven lives were lost. The delay brought down a particularly bad monsoon, and high climbing was impossible. The party had proved that it was possible to acclimatise at 23,000 feet above sea level, to sleep 3,000 feet higher, and to travel on the uppermost snows of the great mountain.

These factors are of importance to the new assault. Messrs. Leigh-Mallory, Somervell, and Norton are experienced leaders; their coolies will doubtless be the men used on the last expdition. There seems nothing physically impossible in the ascent. The difference in air pressure at 29,000 feet is a mere trifle less than 27,250 feet. The angle of ascent is not terrific. If the weather permits residence on the upper snows there is no doubt that the party of 1924 is fit to wring victory from the hibhest Himalaya.

On a Seventeenth Birthday.

To-day my tall broad-shouldered lad,
With such a grave, protective mien,
I watched with eyes grown strangely sad,
Though proud these mother-eyes had been;
For brave and bonny seventeen
Is not a saddening sight to see,
Yet I have lost, long years between,
My little boy that used to be!

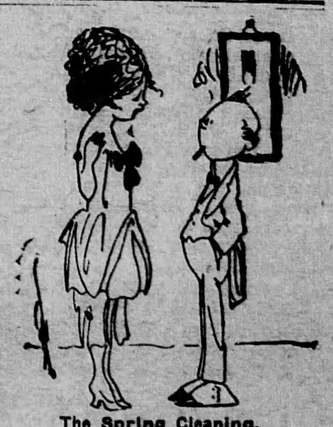
How well remembered and how glad
That hour when happier than a queen,
A rosy infant son I had,
When all the singing world was green;
With what deep gratitude serene
I welcomed my maternity;
He was the sweetest ever seen.
My little boy that used to be!

I see him now in velvet clad,
And just a trifle vain, I ween,
Showing his new suit to his "dad,"
As male birds their feathers preen;
His curls had such a golden sheen,
And by his crib on bended knee
I'd pray God's love from harm would screen,
My little boy that used to be.

—Anne P. L. Field.

Real Obedience.

Four-year-old, to her favorite doll, the loss of whose arm exposes the sawdust—"Oh, you dear, good, obedient dolly! I know I told you to chew your food fine, but I had no idea you would chew it as fine as that."



The Spring Cleaning.

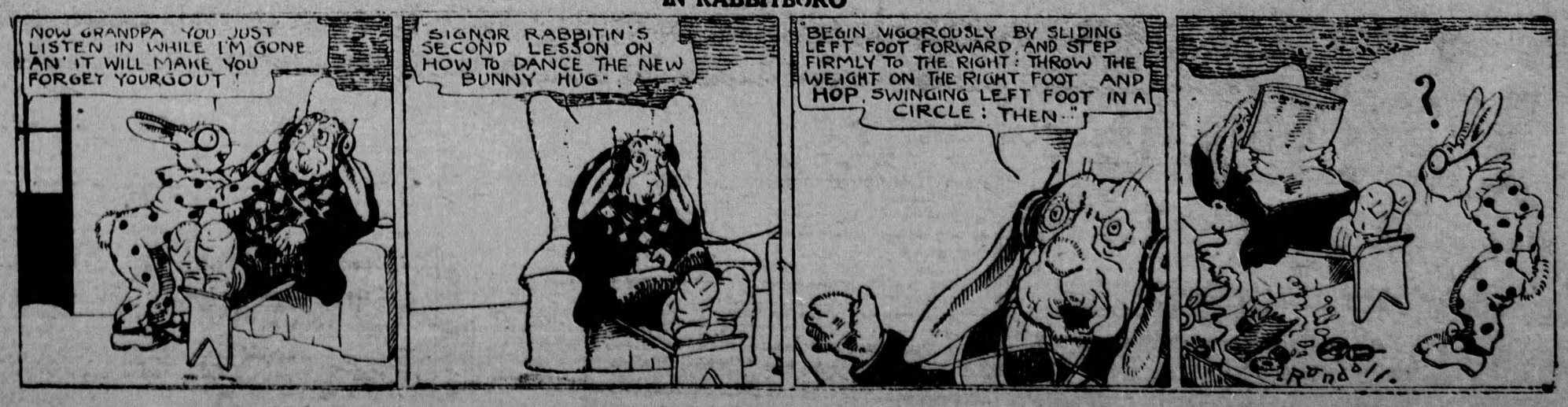
Hubby—"Now you've cleaned me out pretty thoroughly for Easter, what's your next?"
Wife—"The rugs!"

Over a White Road.

By Lereine Ballantyne.

Over a white road
And far away,
Where dream-land beckons
At close of day;

The bright sun goes
And shadows creep,
And the moon peeps out
To vigil keep.

Over a white road
Where fairies call,
The sandman gets you
In spite of all.

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