Mark Well!

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On the Big Grade

By EUGENE JONES.

CHAPTER IV.

"What up supposing! Two lives against three hundred—I want a fireman!"

The dispatcher mopped his face.

"No use; none of 'em would go!"

I turned about. There were a couple of firemen who were off duty lounging along the rail.

"Volunteers! Will either of you fire for me?"

But no voice answered.

A sudden rage filled my veins.

"Look here!" I yelled, "You bunch of white-livered apologies for men, I want a fireman. Don't you understand? Didn't you hear me? It's to save the Limited! It's to save the reputation of the division! Somebody's got to. We may pull through all right—"

Only silence greeted me, sullen, shamefaced refusal. My eyes became blurred; the blood was pounding at my temples, my fists aching to strike out, to feel quivering flesh beneath them. Perhaps I was a little crazy for a moment—

Then a clear voice from the door cut through the tension, a woman's voice. We turned.

Shirley Winston stood there, and she was speaking to me, ignoring the rest contemptuously.

"Mr. O'Kelley, you get ready. Get the line cleared. I'll find you a fireman in three minutes. Never fear! In three minutes!"

Before I could answer she was gone, flashing off down the hall.

Pop was already at the key, his assistants taking his orders on the jump. I glanced at my watch and waited. Wire talk, stuttering fierce, flew in every direction. Freights were ordered to sidings, passenger trains stopped, backed, and shunted out of the way. The nerve force of the entire division trembled with sudden feverish energy—energy which must clear the line for a race against death.

In precisely four minutes I heard the shriek of my own locomotive in the yards, a warning whistle for me to hurry. But still Pop delayed.

"Just a moment," he begged. "Just a— There! Now go to it! Number one hundred and thirty-five is clear at Biltmore. Go to it and—God bless you!"

How Shirley could be sure of finding a fireman ready to take such chances was beyond me. All I knew was that the fate of three hundred people, the fate of Jim Duval, and the happiness of a girl I loved as a daughter hung in balance.

Old ninety-nine, the biggest oil burner on the division, had been shunted to the main line. In fact, as I flung myself at the cab steps the drivers turned. I leapt for the throttle, shoving the fireman aside.

"Give it to her!" I yelled. "All she'll take!" Then, as the yard lights slipped past, my eyes rested for a second on the figure in jumpers bending over the oil valves. What the devil—

"Shirley!"

She turned a soot-begrimed face to me.

"Yes," she said calmly enough. "Why not? I tried to find a fireman. There wasn't anybody around. To hunt them up would have taken time—"

"But think, girl, the risk!"

She clenched her hands.

"Risk? I love Jim Duval. Don't you understand? What's my life worth without him? If we can't save him, we'll save his memory from disgrace—save those people on the Limited. You go on and drive your engine. Forget a girl's firing for you. Anybody can fire an oil burner. Just remember those poor souls on the Limited—if you care for me, for Jim!"

Never before had an engineerman been placed in such a predicament. To stop and hunt up a fireman meant certain disaster on the mountain; by going on I might be carrying this woman to her death. It was her life and mine against the Limited, her love and bravery against the fate of Jim Duval. I turned my eyes back to the flowing darkness, and asked the Lord to guard her, the wind whipping the words from my mouth. Shirley firing for me! Shirley sharing the perils of a lone locomotive racing a runaway on the big grade! What a situation! Biltmore we were doing sixty-five miles an hour. At Ardon I could only judge the speed by the rush of wind. Lighted houses leapt out of the void, swam by; freights in the clear echoed the crash of our passing; old ninety-nine swayed, trembling in every fibre, gathered herself in ever-increasing effort and hurtled on, a black spot in a black night. While behind me, silhouetted against the glow of the furnace, stood the slim figure of the girl, watching the steam and oil gauges.

Toward us spun the track out of the tunnel of brilliance cast by our headlight. The green of semaphore lamps were passing jewels; now and then I caught a picture of a white face pressed against a window. All the division knew! All the division were watching for us, praying for us! It was a race against time, a gamble with the Fates rolling that runaway should be held and jerked the throttle back the last notch. We were doing eighty miles an hour. The engine rocked, screaming like a thing on the curves, righting herself with dizzy plunges.

Even to me, a veteran, that ride was the most hair-breadth I had ever undertaken. And the dangers were real enough. Once a tardy freight pulled into the clear with her caboose only three hundred feet in front of us. Splitting a switch meant instant death for both Shirley and myself, but delay meant an equally horrible end for the Limited on the mountain. As it was, the runaway had a tremendous start, yet I knew seventy-o-seven to be a slow engine. Her low-lay our hopes. Coal-burning, with a small tender capacity, neither her nor her fireman's box would long sustain any great speed without a fire to keep up steam. And there was another danger, too—somewhere around a curve we might find her stalled, whereupon our chances of escaping alive would be about equal to the proverbial snowball.

How much of this the girl comprehended as she stood there over the oil jets, her slim young body braced, her hair flying loose like living flame in the glare of the furnace door, I had no means of telling. Yet surely she realized the odds against us. Surely the same knowledge which enabled her to hold the steam as steady as a rock just under the two hundred mark must have whispered of fearful possibilities!

Was Jim alive or dead? Was he helpless on the runaway, unable to reach the throttle, or was he lying somewhere behind us by the track? What had become of his fireman?

Such were the questions pounding in my brain, pounding to the roar of the drivers. Trestles, cuts, fills, long stretches of glittering right of way whizzed past and were forgotten. Every moment or two the white-striped board of a crossing leaped like a speeding ghost out of the darkness, and I would reach for the whistle cord. We no longer could reckon time; the world became a dark place through which we thundered at a sickening speed, mindful only of what lay ahead. If a semaphore had been set against us, we could not have stopped! The fate of a division was riding that night, and in the balance hung three hundred lives!

(Concluded in next issue.)

Ants That Keep Slaves.

The ant is man's greatest rival. Ants have a social life, a power of combined effort, and a marvellous variety of activities that enable them at times to achieve something like an industrial civilization.

Before man knew enough to take to agriculture some ants of America were farming the soil. In politics, also, ants are advanced. They have tried every form of Government, including socialism and militarism! Their numbers are not so great in this country, nor are they particularly fierce, but in South Africa ants are amazingly numerous and are a danger to man.

The red ant is a typical soldier; he does nothing but fight. He has very powerful jaws and is generally strong, yet he cannot get on without a slave to feed him! If he were left to feed himself he would die. He continually raids the nests of weaker insects and brings them back as prisoners, thus solving the servant problem and keeping himself well supplied with attendants.

There is a species of ant in Australia called the bulldog ant, because of its extreme pugnacity. It will fight anything and everything. If one of these ants is accidentally cut in half, one half will actually fight the other half to the death.

That ants should be able to kill a snake may seem incredible at first. When an enemy is sighted the alarm is given at once and the whole community of ants arises in a body. They set upon the reptile, striking their snipers into it at thousands of points. The attack is made with such splendid concentration and in such enormous numbers that the snake has no chance of escaping. When the snake is dead the ants will tear off the flesh in small pieces, taking all away with them except the bones and the skin.

In the forests of Africa a dreaded insect is the bull-ant. Every kind of beast or reptile will flee before this pest. These ants march through the forests in a column about two inches wide and miles long. Any creature overtaken is at once attacked. Natives overtaken by them will seek refuge in the nearest river.

Twelve officers hold the rank of Field-Marshal in the British Army, the only non-British holders being Marshal Foch and the Emperor of Japan.

Poland, the recreated State, consists of 120,000 square miles, with a population of 21,000,000.

Minard's Liniment Relieves Colds, etc.

What Is Ether?

Of all the mysteries that have puzzled science, none has seemed less easy of solution than that which concerns the ether of space.

It has long been obvious to physicists that space must be filled with something of a material nature. It cannot be seen, or felt, or perceived by any of our senses; but it must exist else how could energy be transmitted through it.

We get light and heat from the sun. These are forms of energy, and so likewise is electricity. Energy must have a vehicle for its transmission. We know that waves of light from the sun impinge upon the retina of the eye. They are called light waves, but, of course, there is no light without an eye.

There is a substance that fills all space. We cannot perceive it because it has no molecular structure. It contains no atoms. But we do know that it is elastic; it has waves of known length and measured velocity.

This substance, called the 'luminiferous ether,' is absolutely transparent, as we may judge from the fact that light comes through it to us from stars at unfathomable distances. If it were made up of molecules, like material bodies, such transparency would be inconceivable.

It is called a "fluid," but it does not flow. Apparently it is stationary. The earth, travelling at a speed of eighteen miles a second in its journey around the sun, does not disturb the ether in the slightest degree. If it did so, the light waves that come to us from the stars would be disturbed.

What, then, is this strange interstellar substance that transmits the solar energy on which all terrestrial activity depends? Science believes that now, for the first time, it is able to give an answer to the question.

The ether is the substance out of which everything in creation is made. The rocks are made of it; the plants are made of it; you yourself are made of it.

Material bodies of all kinds are composed of molecules. These molecules are made up of atoms in various arrangements. Each atom contains a less or greater number of "electrons," which are revolving at enormous speed.

Molecules differ; atoms differ; but the electrons are all exactly the same substance. They are tiny packages of ether.

A PARADISE FOR SKI-MEN

A Paradise for Ski-men.

Preparations are already being made for the annual carnival to be held at Banff amidst the glories of the Canadian Pacific Rockies. Banff is ideally situated for winter sports and this season the dates have been fixed from January 29th to February 5th inclusive. The Secretary writes that the programme is to be considerably extended. He says:

"Our Ski Hill has now been completed in accordance with the suggestions made by the world's champion, Anders Haugen, of Brooten, Minn., and we are confident that a new world's record will be established on our Hill this Carnival. We have decided to offer a substantial cash prize to the man who can beat the present world's record and to supplement this cash prize with a further prize of $10.00 for every foot or portion of a foot by which the record is broken on our hill. We will also follow the same principle in connection with the amateur championship only in that case the inducement or reward will be in the shape of an especially attractive prize. We have at the present time four different jumps, so that we will be in a position to stage competitions in all classes of this very spectacular and hair-raising sport.

"We expect that ladies hockey will be a very important factor in our sports this season. We have already been advised that the ladies of Vancouver, under the leadership of Mr. Frank Patrick, of professional hockey fame, expect to compete. The Regents, the Champions of Western Canada, of Calgary, the Patricias, also of Calgary, a team from Edmonton, a team from Vulcan, Alberta, and perhaps teams from Winnipeg and Ottawa are all expected to be on hand and compete with Vancouver and Ottawa for the Championship of Canada. A very elaborate trophy, together with ten very attractive and costly prizes, will in all probability be announced a little later in connection with this event.

"An ice palace will be constructed on a basis far more extensive than anything heretofore attempted and the resident engineer of the Dominion Government is now at work preparing the plans for same. We expect this palace, when illuminated, will be a view that will long live in the memories of those who will be fortunate enough to visit us and see it. The palace will be stormed at different times during the Carnival by representatives of all the different sports indulged in, and it is expected that the fireworks display on these occasions will be most interesting.

"Special attention will again be given to art and fancy skating, and competition in these items on our programme promise to be very interesting. The Connaught Skating Club of Vancouver, with a membership of almost three hundred, has written saying that the Club will be well represented, and if we could be assured of some entries from Eastern Canada and the States, together with the assured entries we will have from Winnipeg, Calgary, Edmonton and Saskatoon, this feature of our programme would be one of the biggest events ever attempted in Canada. Application will be made to the Amateur Athletic Union of Canada to have all these contests representative of the Canadian Championships."

Before Mary Begins School.

Give a child the idea of size with a nest of boxes, with a set of books graded by sizes, with blocks, with spools, with tin pans. Any set of objects in series will be the materials for a group of play lessons for which the words "large" and "larger," "small" and "smaller" are the keys.

Along with size come length and height. Following sizes comes shape, taught most easily by sorting out all the blocks of a kind or all the beads of a kind from the usual boxes of blocks and wooden beads which are to be found among the playthings of most children. They all love to pick out shapes by touch, finding in a group of objects hidden under an apron in the mother's lap the twin of an object they hold in their hands, then, when they have the idea, doing the same from piles of their own making. They are interested in likenesses and differences. This interest is, indeed, at the bottom of most play suggestions for little children. Through it we start the child on the training of his sensibilities. In discovering differences and noting them and in performing operations which make note of them through touch or sight, the child is developing these powers which are at the moment awaiting development.

Other plays with duplicate spools or blocks introduce the idea of matching things, selecting one and finding its twin. Then we come to sorting and here are opportunities for a variety of plays. Mix from the kitchen supply closet brown, white, and speckled beans; provide three receptacles into which to sort them. Make a play set from your button box. Children's delicate finger-tips are quickly susceptible to differences in texture. Go to your piece bag and cut squares (patchwork size) of cotton, flannel, velvet, corduroy, burlap, chamois skin, leather and silk, to be sorted into pieces of each kind, first by touch and sight, then by touch alone. Color plays come in a natural sequence, employing at first only the primary colors, red, orange, yellow, green, blue and violet.

The whole secret of home education for little children is for the mother to meet awakening instincts and powers with play supplies and play suggestions. To meet his needs she has only to get his viewpoint and travel with him the road of investigation and appreciation of the interesting world about him.

Tiddledywinks Baseball.

Tiddledywinks baseball is amusing for a stormy afternoon or for an evening party. The dining-room table, covered with a silence cloth or a thick shawl, is the diamond. Small glass cups represent home plate, first, second and third bases. One of the small white tiddledywinks counters serves for a ball, while the colored ones represent the men.

The object of the game, as in baseball, is to get as many run as possible and to prevent the opponents from getting any. There may be several players on a side, but four is a good number.

A player on the side that is at bat first takes the white counter, places it beside the home plate and snaps it across the table as far on fair ground as possible. Then he takes a colored counter, representing the runner, places it beside the home plate and snaps it to first base. The side in the field watches the white counter; the player nearest to the place where it lands snaps it to first base as quickly as he can. It is a race to see whether he or the base runner will land his counter in the first-base cup soonest. If the white counter is pocketed first the runner is out. If the runner lands his first, he is safe. He may then go on snapping for the second cup, or he may wait.

The game proceeds after the fashion of real baseball. When the second batter is up he may bunt the ball by snapping the white counter only an eighth of an inch in front of the plate. While the other side scrambles for it he snaps his colored counter on toward first, and the runner at first base hurries on to second. The white counter may catch the runner who is going to second and jump into the cup at the same time. If it is a tie, the decision goes to the runner. Now the white counter is rushed back to first, which the other runner is still struggling to reach. The runner is put out. Another player goes up to the bat. This time there is a scramble to put the runner out at third; it fails, but he is caught a moment later at home plate. The next batter, we will say, is put out at first, then the other side has its inning.

The Empty Spool.

Thread was at first sold in hanks, as knitting wool is now, and ladies had to loosen the skeins and wind it into little balls. But a progressive thread manufacturer, James Clark, got a wood turner named Robert Paul to make a few wooden spools in the early eighteen hundreds, and then James Clark himself, to accommodate a fair customer, would sit down at a weaver's pirn in his own shop, while she waited, and wind the skein of thread on it for her. He charged her half a cent for this courtesy.

When the spool was empty she brought it back to him and he wound it full with thread again.

The fourth generation of Clarks are now making the cotton thread you use to-day. Give the courtly old business fellow, James Clark, a passing thought when you throw away the next empty spool. Ladies could not do that in 1812.

There were plenty of other things they couldn't do and wouldn't do in those good old days. Thrift came naturally and of necessity in a world where inventions were not looking to waste and comfort. Wooden spools were never thrown away; a thimble lasted a lifetime, and one needle was often all a household afforded. It was kept as carefully as such a treasure deserved to be kept.

One bonnet, one shawl, one dress did almost a lifetime, too, for materials were hard to obtain and dressmakers few in number. When women wove their own clothes and the clothes of their families they did not encourage frequent change in fashions.

Nature Study in Winter.

Start the little folks in nature study. Buy a bulb or two and start them in a glass bowl of warm water, with a sprinkle of sand and a few pebbles in the bottom. Have the children watch for signs of the first shoot, and reward the sharp eyes which see it first. Let each one have a pot of earth, an empty can with a few holes punched in the bottom will do, and give them a few seeds to plant in their own can. Give each child a different seed. Have them keep records of the planting, growth and development of their plant. A double lesson may be taught, that of nature, and the spiritual lesson of the resurrection. Get out doors every day, if only for five minutes on the porch. You need the fresh air. Bundle the kiddies up and send them out, no matter what the weather. The crying lack of the average Canadian adult and child is fresh air.

The Fairest Thing.

The fairest thing God ever made
For human eye to view
Is God's dear sky by cloudlets strayed,
White isles and sea of blue!
Forever move without a sound
Those floating hills of snow;
But whence they come or whither bound
Only the wind can know.

The fancies of a myriad men
Have mused upon the sight!
And wondered as they gazed again
And felt their hearts grow light;
Something unnamed that pureness vast
Doth filter through the soul
To strengthen and to guide at last
The spirit to its goal.

Thank God for what no man can know,
What utters no replies.
By meeting mystery we grow
To be more truly wise.
Not darkness only bars our ways
And 'wilders most our thought;
The truth may come in such a blaze
It dazzles, is not caught.

So daily, hourly, let me learn
The worthiest lore to win,
The line where knowledge back must turn
And faith her path begin;
Let us peruse the book of space
Where time's a thing of naught,
The fair blue sky that veils the Face
By whom all things were wrought.

Minard's Liniment for Burns, etc.

Highest Railway Stations in Canada.

The highest railway stations, with their elevations in feet above sea-level, in the respective provinces of Canada are as follows:

Nova Scotia, Folleigh, 612 feet; New Brunswick, Adams, 1,204 feet; Prince Edward Island, North Wiltshire, 311 feet; Quebec, Boundary, 1,800 feet; Ontario, Dundalk, 1,705 feet; Manitoba, Erickson, 2,053 feet; Saskatchewan, Senate, 3,171 feet; Alberta, Mountain Park, 5,820 feet; British Columbia, Stephen, 5,332 feet; Yukon, Meadows, 2,924 feet.

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CONTROL OF FORESTS BY TRAINED MEN

RECENT ACTION OF ONTARIO GOVERNMENT.

Places Administration of the Forests on Crown Lands Under Practical Foresters.

The opportunity for the beginning of a new era in the forestry situation in Ontario was created by the recent announcement of the Provincial Government that henceforth the timber administration of Crown lands will be under the Provincial Forestry Branch, instead of comprising a separate organization, in which no foresters were employed. This is the most important development which has yet taken place in the forestry situation in Ontario.

By this action, assuming that its logical consequences will follow, Ontario aligns herself with the provinces of Quebec, British Columbia and New Brunswick, which had already recognized the necessity for taking the first for the future by making forestry responsible for the technical administration of Crown timber lands. A parallel example had been set by the Dominion Government at a still earlier date, when the Dominion Forestry Branch was placed in charge of the timber administration on Dominion forest reserves in the west, exclusive of the licensed lands or timber limits.

Nova Scotia has practically no Crown timber lands, her forests having passed into private ownership many years ago. The need for a provincial forest service there is limited to upon the opportunity for the development of better forestry practice on these privately-owned timber lands, and upon the urgent need for a greatly intensified system of forest protection, to cover all the forested area of the province.

Prince Edward Island is not a forest province practically the whole of her land area being under cultivation.

Beginning of New Era.

Ontario is the last of the forest provinces to recognize the necessary and logical connection between forestry and foresters. The recent action should and no doubt will, mark the beginning of an era in which the fullest practicable consideration will be given to so regulating the methods of cutting on Crown lands as to leave them in a condition to produce another crop of valuable timber species. It has been demonstrated that logging operations in which cutting is not regulated with an eye to future productivity are generally destructive to the quality and quantity of the future growth. Each area requires to be carefully studied in advance of cutting, that the method of treatment to be prescribed may be adaptive to local conditions and at the same time be practicable from the operator's viewpoint, to say nothing of being reasonable from the viewpoint of additional cost involved.

Ontario is to be congratulated upon the progressive action taken in thus far recognizing the need for a technical administration of Crown timber lands. The Provincial Forestry Branch has a great responsibility and a great opportunity for public service in the prospective addition to its previous work of forest protection, of the inauguration of forestry practice upon the great areas of Crown lands which have now come under its jurisdiction. Progress will necessarily be slow; economic conditions must be fully recognized; and it will take time to develop the kind of organization required for so large a task. Public sentiment is now undoubtedly fully ripe for the development of this situation along the most modern lines. It must, however, make itself actively felt, in support of a really progressive forest policy.

Has the Earth a Tail?

Opposite to the sun there is a very mysterious glowing patch, which is thought to be attached to the earth as a comet-like tail.

The highest regions of our atmosphere consist of very light gases, and the impression is that some of these were driven away by the sun or by other means, and that they stream off from the earth into space just as the light gases do from the head of a large comet.

Naturally, such a theory has aroused much controversy, and has led to all sorts of ingenious suggestions. One of these is that a swarm of meteors (of the kind we know as shooting stars) keeps us company through space at a distance of about a million miles, or four times the distance of the moon. But a tailed earth is an ideal vehicle for imaginative flight.

It might be argued that if our globe has a tail why should not the planets Mercury and Venus, and even Mars, have one. Well, perhaps they have, for all we know to the contrary. Our earth's tail would be much more easily seen by us because of its nearness and brightness.

Airplanes to Survey Africa.

It is proposed to adapt the aeroplane to further discoveries in Darkest Africa.

Rome Sells Street Refuse.

The refuse from the streets of Rome and other Italian cities is sold by auction.

FRANCE RECO MILLIONS I

REPORT OF TH BADEN COMMI

Exposes Huge Rob Soldiers — Restor Booty Secreted in

Elaborate defence mans against the invaders stole their hands on during the war and by the report of mission which con tion of stolen zons under the treaty of Ver

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"I have come of Baroda."

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Have Some Grit.

"Be cheerful, keep smiling, no
how things are;
Be kind, be gentle, and the rest
not seem far.
Standing still and moping will
help a bit—
The folks who're up and doing are
folks who have some grit

From a shark weighing 500 pounds it is possible to obtain 10 square of leather suitable for boots shoes.