

HOW SWEET!

BY JESSIE R. M'INTYRE.

How sweet to know that Jesus
Loves sinners such as I—
To know he came from glory
To suffer and to die!
He left his throne in heaven
To wander here below,
An exile and a stranger,
Through countless paths of woe.

He left his Father's bosom,
He left the sainted throng,
He left the holy harp,
He left the angel's song,
He left them all for sinners;
He bore their guilt and pains,
And in his blood so precious
Washed all their crimson stains.

He loves us, O he loves us!
He pleads for us above,
With more than brother's kindness,
With all a Savior's love.
Then come dear friends, to Jesus;
The hall is filling fast:
The evening shadows deepen;
The day will soon be past.

Edinburgh

CHANGE OF FORTUNE.

I ran across what first struck me as a very singular genius on my road from Springfield to Boston. This was a stout, black-whiskered man who sat immediately in front of me, and who indulged, from time to time, in the most strange and unaccountable manoeuvres. Every now and then he would get up and hurry away to the narrow passage which leads to the door in these drawing-room cars, and when he felt himself secure from observation, would fall to laughing to himself in the most violent manner, and continue the healthful exercise until he was as red in the face as a lobster. As we neared Boston these demonstrations increased in violence, save that the stranger no longer ran away to laugh, but kept his seat and chuckled to himself, with his chin deep down in his shirt collar. But the changes that those portmanteaus underwent. He moved them here, there and everywhere; he put them behind him, in front of him, on each side of him. He was evidently getting ready to leave, but as we were yet twenty-five miles from Boston, the idea of such preparations was ridiculous. If we had entered the city then, the mystery would have remained unsolved, but the stranger at last became so excited that he could keep his seat no longer. Some one must help him, and as I was the nearest to him he selected me.

Suddenly turning, as if I had asked him a question, he said, rocking himself to and fro in his chair the meantime, and slapping his legs and breathing hard: "Been gone three years!" "Ah!" "Yes, in Europe. Folks don't expect me, but I got through and started. I telegraphed them at the last station, and they've got it by this time." As he said this he rubbed his hands and changed the portmanteau on his left to his right and the one on the right to the left again. "Got a wife?" said I. "Yes, and three children," he observed, and he got up and folded his overcoat anew, and hung it over the back of his seat. "You are pretty nervous over the matter, are you not?" I said, watching his fidgety movements. "Well, I should think so," he replied; "I have not slept soundly for a week. And do you know," he went on, glancing around at the passengers and speaking in a low tone, "I am almost certain that this train will run off the track and break my neck before we get to Boston. Well, the fact is, I have had too much good luck for one man lately. The thing can't last; it isn't natural that it should, you know. I've watched it. First it rains, then it shines, then rains again. It rains so hard you think it's never going to stop; then it shines so bright you think it's always going to shine; and just as you are knocked over by a change, to show that you know nothing about it."

"Well," according to that philosophy," said I, "you will continue to have sunshine because you are expecting a storm." "It is curious," said I. "Yes," he replied, "I am a machinist—made a discovery—nobody believed in it—spent all my money, trying to bring it out—mortgaged my home—all went. Everybody laughed at me—everybody but my wife—fine little woman—said she would work her fingers off before I should give it up. Went to England—no better there; came within an ace of jumping off London Bridge. Went into a shop to earn money to come home with; then I met the man I wanted. To make a long story short, I've brought \$30,000 home with me, and here I am." "Good

for you!" I exclaimed. "Yes," said he, "\$30,000; and the best of it is she don't know anything about it. I've fooled her so often that I concluded I would say nothing about this. When I got my money, though you better believe I struck a beeline for home."

"And now you think you will make her happy," said I.

"Happy!" he replied, "why you don't know anything about it. She's worked like a dog while I've been gone trying to support herself and her children decently. They paid her thirteen cents a piece for making coarse shirts; and that's the way she lived half the time. She'll come down there to the depot to meet me in a gingham dress, and a shawl a hundred years old, and she'll think she's dressed up. Oh, she won't have nice clothes after this—oh, no, I guess not!"

And with these words, which implied that his wife's wardrobe would soon rival Queen Victoria's, the stranger tore down the passage-way again, and getting in his old corner, where he thought himself out of sight, went through the strangest pantomime, laughing, putting his mouth into the drollest shapes, and then swinging himself back and forth in the limited space, as if he was "walking down Broadway," a full-rigged metropolitan belle. And so till he rolled into the depot, and I placed myself on the car opposite the stranger, who with a portmanteau in each hand, had descended and was standing on the lower step ready to jump on the platform. I looked from his face to the faces of the people before us, but saw no sign of recognition.

Suddenly, he cried, "There they are!" and laughed outright, but in a hysterical sort of way, as he looked over the crowd. I followed his eyes and saw at some distance standing back, as if crowded out and shouldered away by the well-dressed and elbowing throng, a little woman in a faded dress and well worn hat, with a face almost painful in its intense but hopeful expression, glancing from window to window as the coaches glided in. She had not seen the stranger, but a moment after she caught his eye, and in another instant he had jumped the platform with his two portmanteaus, and making a hole in the crowd, pushing out here and there, and running one of his bundles plump into the well developed stomach of a venerable old gentleman in spectacles, he rushed towards where she was standing.

I think I never saw a face assume so many different expressions in a short time as did that little woman while her husband was on his way to her. She didn't look pretty. On the contrary, she looked very plain, but somehow I felt a big lump rise in my throat as I watched her. She was trying to laugh; but, God bless her! how completely she failed in the attempt! Her mouth got into the position, but it never moved after that, save to draw down the corners and quiver, while she blinked her eyes so fast that I suspect she only caught occasional glimpses of the broad-shouldered fellow who elbowed his way so rapidly toward her. And then, as he drew close and dropped those everlasting portmanteaus, she just turned completely round, with her back toward him, and covered her face with her hands. And thus she was when the strong man gathered her up in his arms as if she had been a baby, and held her sobbing to his breast.

There was enough gaping at them, heaven knows, and I turned my eyes away a moment, and then I saw two boys in threadbare roundabouts standing near, wiping their eyes and noses on their little coat-sleeves, and bursting out anew at every fresh demonstration on the part of their mother. When I looked at the stranger again he had his hat drawn down over his eyes; but his wife was looking up at him, and it seemed as if the pent-up tears of those weary months of waiting were streaming through her eyelids.—*Springfield Republican.*

MEMORY indiscriminately loaded, is a very foolish thing; and knowledge wrongly applied is, perhaps, worse than ignorance. No one ought to learn more than he can digest, for instead of augmenting what he already knows it will only confound it. A little correct knowledge is better than a multitudinous mass of loose ideas and inaccurate facts.

BEFORE THEY CALL I WILL ANSWER.

A Dutch preacher once held a meeting one evening in a strange city. While he was preaching, and enforcing upon the hearts of his hearers the doctrine of the cross, a police officer came into the room and forbade him to go on. He even commanded him to leave the city. As he was a stranger in the place, and the night was dark, he wandered around the city gates. He was not however, without consolation, for he remembered Him who said, "Lo, I am with you always, even unto the end of the world." Though I walk through the valley of the shadow of death, I will fear no evil, for thou art with me; thy rod and thy staff they comfort me."

He had long been in the school of Christ, and had long learned to watch for the slightest intimations of his will. While he was thus wandering around, suddenly he saw a light in the distance. "See," he said to himself, "Perhaps the Lord has provided me a shelter there," and in the simplicity of faith he directed his steps thither. On arriving he heard a voice in the house; and as he drew nearer he discovered that a man was praying. Joyful, he hoped that he had found here the home of a brother. He stood still for a moment and heard these words poured forth from an earnest heart: "Lord Jesus, they have driven thy persecuted servant out of the city, and he is perhaps wandering at this moment in a strange place of which he knows nothing. O may he find my home, that he may receive here food and lodging."

The preacher having heard these words, glided into the house, and as soon as the speaker said "Amen," he saw his prayer was answered. Both fell on their knees and thanked the Lord, who is a hearer of prayer, and who never leaves nor forsakes his servants.—*Christian Era.*

THE LATEST NEWS FROM THE SUN.

There are not many persons living who, with the reverend Director of the Observatory of the Roman College, can lay claim to have minutely examined the face of the sun every day for the past ten years. Father Secchi, moreover, as an astronomer is the peer of Lockyer, Huggins, or Young, and as such his conclusions are worthy of the highest respect. The new edition of his work on the sun, which has lately been published in Paris, embodies the results of his most recent investigations, as well as those which have extended over long periods of time, and hence it may be regarded as one of the latest dicta of Science regarding the physical constitution of our luminary.

Father Secchi's theory of the sun spots is that they are phenomena of eruption. They result from the upheavals which take place in the solar mass, and form, in the photosphere of luminous envelope, cavities more or less regular, surrounded by brilliant projecting ridges. The depth of these cavities rarely exceed 3,600 miles—generally it is less—and the hollows themselves are filled with dark vapors which absorb and so cut off the luminous rays emitted by the strata beneath. The physical constitution of the solar mass, and the true nature of the incessant motion of which it is the seat, have been little understood. Now, however, we are in possession of a spectroscopic method of distinguishing the different currents which cross and mingle, of discerning the jets of hydrogen and of incandescent metallic vapors, and observing the rose colored protuberances which formerly could not be studied, except during a total eclipse. When the bright light of the radiant disk was intercepted. Father Secchi has determined the closest relations between the spots and the protuberances seen on the solar edge.

If the results of a series of observations of solar rotations be considered, it appears that the spots, the most brilliant faculae, and the eruptive protuberances (those which contain metallic vapors) appear as a rule in similar regions on the solar disk. That is to say, in the two zones near the equator and comprised between the 10th and 30th parallels of latitude, and that the majority of these phenomena occur at the same epochs. When a number of individual observations of spots and protuberances are thus compared, this conclusion is not at fault; but this is to be expected, because the protuberances can be seen only on the edge, while the spots and faculae are visible on the face of the sun. On the other hand, the parallelism of the three orders of phenomena becomes manifest when the results are considered in the aggregate. Moreover, whenever a considerable protuberance rises on the oriental side, it is almost certain that a spot will appear next day in the same place.

Father Secchi therefore considers that without doubt the spots and protuber-

ances are correlated phenomena, and that the spots are a secondary effect of the eruptions which are revealed to us by the protuberances. It is necessary, however, to note that the latter do not always appear to be true eruptions, as they are often simple jets of incandescent hydrogen which rise from the photosphere like fires from a forge. Such flames cannot produce the absorbent vapors which form the spots. Hence a distinction must be made between eruptive protuberances characterized by the presence of metallic vapors, and hydrogen protuberances where such vapors are not manifest; but, the author adds, traces of the metallic spectroscopic lines are almost always discernible at the base of the hydrogen jets. The difference between the two kinds of protuberances, therefore, while existing, is not clearly defined. Often the metallic lines of the protuberances are visible on the solar disk, and are prolonged as far as the nucleus of a spot near the edge, affording irrefutable evidence that the metallic vapors have their origin near the nucleus. Beyond the 40° parallels, true spots and eruptions are rarely encountered.

The eruptions are probably violent crises produced by chemical combinations which occur at a certain depth below the solar surface. The cooled products of the reactions unite in thick clouds, like those clouds arising from sulphur volcanoes, which fall by virtue of their weight when condensed, and bury themselves in the luminous envelope, while they in turn are quickly invaded by the ambient matter of the photosphere. From all sides tongues of fire penetrate the interior of the spot, and, joining it together in places, divide it into segments. These luminous filaments give to the penumbria its radial structure, and then, becoming as it were dissolved in the obscure mass, lose their brilliancy by cooling. The spot then assumes quite a regular rounded form; a period of calm succeeds the fierce effervescence and the tumultuous and discordant movements which characterize the formative processes. Above the dark nucleus, less intense emanations occur of short and slightly luminous flames, in which the spectroscopic is no longer able to recognize the lines of metals. Then, little by little, the spot diminishes and finally totally disappears.

This theory is believed to account for all the phenomena hitherto observed; and it will be seen that Father Secchi is no adherent of the whirlwind theory, which he somewhat brusquely dismisses as a "fiction destitute of all reality." Out of several hundred spots which he has closely observed, he says that but seven or eight show a spiriform structure." This even disappears in a day or two, and often the rotary movement, after becoming slower is rendered in the opposite direction. The motion, he affirms, is no essential property of the spots.

The physical constitution of the sun, our author sums up as follows: The sun is formed of a fluid incandescent mass, enveloped in a highly luminous photosphere, above which there is yet an atmosphere of less density. The photosphere is a fiery mist, probably of gases which have become luminous through the effect of high temperature and high pressure. Immediately above this, a very thin envelope of metallic vapors mixed with those of hydrogen is encountered. This is the chromosphere, and its thickness is from 10 to 15 seconds of arc. Beyond the chromosphere again there is a vast envelope composed of hydrogen and of two unknown substances which produce the yellow spectrum line D₂, and the line 1,474, and to one of which the name "helium" has provisionally been given. During total eclipses of the sun, the outer envelope becomes visible and produces the phenomenon of the corona. Finally the vast eruptions throw forth jets of hydrogen to heights equal to one fourth the solar diameter, 224,400 miles, and with such tremendous velocity that it is believed that the hydrogen may at times leave the sun and pass into the interstellar space.—*Scientific American.*

HOW TO LAY SHINGLES.

Not one-half the persons who lay shingles when making a roof on a building have any correct ideas in regard to making a roof that will be absolutely rain tight during a driving storm of rain. We have frequently seen men shingling, who, when meeting with a worthless shingle, say once in laying two or three courses, would lay this poor shingle among the good ones, saying: "It is only one poor shingle, one shingle cannot make a poor roof." But one poor shingle will make a leaky one. If first-rate shingles are employed, and one poor one is worked in among every 100, that roof might about as well have been without any shingles. If any poor shingles are to be used, let them all be laid together near the upper part of the roof. The best of shingles will not make a tight roof if they are not properly laid, while the same shingles would make an excellent roof if laid as shingles should be laid.

The correct rule for laying shingles of any length, in order to form a roof leak-tight, is to lay the courses less than one-third the length of the shortest shingles. For example, when shingles are 18 inches long, many of them will not be more than 17 inches in length. Therefore five inches is all that the courses will bear to be laid to the weather with surety of forming a good roof. The shingles must be three thicknesses over the entire roof. If they are not three thicknesses—if now and then a shingle lacks a quarter or half an inch of being long enough to make three thicknesses—there will in all probability be a leaky place in the roof at such a point. Moreover, when the lower courses lack half an inch of extending up far enough to receive the rain from the outermost course, in case the middle course were removed, it would be just as well to lay them seven or eight inches to the weather as to lay them only five, or five and a half inches. Many shingles are only 16 inches long, and many that are sold for sixteen inches long will hardly measure 15 inches. In this case—if the roof be rather flat, say about one quarter pitch—four and a half inches is as far as they should be laid to the weather. In case a roof were quite steep it might answer to lay the courses four and three quarter inches to the weather.

When buildings are erected by the job, proprietors should give their personal attention to this subject, and see that jobbers do not lay the courses a half inch too far to the weather.

There is another important consideration which is too frequently overlooked in shingling, which is breaking joints. Careless workmen will often break joints within half an inch of each other. When the joints of the different courses come so close together, the roof will most certainly leak. Why should it not? There is nothing to prevent it during a heavy rain. Unless a roof is steeper than a quarter pitch, much care should be taken to break joints not less than one and a quarter inches. Let all workmen and helpers be taught the vast importance of rejecting every shingle, except when the upper courses are being laid.—*Canadian Mechanic's Magazine.*

CHILDREN'S CORNER.

BRAVE BOUSSARD, THE FAMOUS PILOT OF DIEPPE.

(From Chatterbox.)

As he descended the hatchway the sick man stretched out his arms to him and cried with a faint voice, "Oh! save me! save me!"

"God be praised!" exclaimed Bousard, as his heart swelled with joy to find the poor man still alive. He hoped now that he should be able to save the last one; but there was not a moment to be lost. The ship groaned and trembled, the waves were dashing furiously on all sides. At every fresh blow it threatened to sink, and then they would both be lost. Bousard seized the sick man, drew him out of the cabin to the deck, and here quickly cut off a strong rope. With this he bound the helpless man to a beam of timber, then grasping firm hold of him, he pushed him into the sea, just at the moment when a huge wave was rolling in toward the shore.

The sick man had just strength to keep himself upright enough to be able to breathe. Now Bousard managed to push the beam before him; then swam beside it till a second wave, rolling onwards, threw both the timber with the sick man on it as well as his deliverer on the strand. The grand and heroic deed had, by God's mercy, been successful.

The anxious and excited people had lighted many lanterns, which gleamed everywhere along the shore, and now the cry arose, "There is Bousard!" Strong arms drew him into safety, and unbound the sick man.

"Quick with him to the hospital!" cried Bousard, as he sank down exhausted.

Shouts of rejoicing low sounded from the pier, and soon throughout the whole town of Dieppe. The wife and children of the brave pilot embraced the husband and father whom God in His mercy had restored to them. With deepest gratitude the rescued sailors surrounded the man who had saved them from certain death.

His strength, kept up by the extreme excitement, had lasted till his noble work was completed. Now it suddenly gave way—he fell fainting into the arms of his wife:

"Oh, my God! he is dying!" cried the agonized woman: and the children wept as if their hearts would break round their beloved father.

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