

The Origin of the World

By R. McMillan.

CHAPTER X.

THE SOLIDIFICATION OF THE ELEMENTS.

WHEN I was a very small boy I was taken to see Professor Anderson, "The Wizard of the North," and he did wonderful things. He borrowed a gentleman's tall hat from the audience, made a real plum pudding in the hat, and cooked it before our eyes on the stage. Then he broke the pudding up into small pieces, and threw them, all smoking hot, among the audience; and those who caught the pieces declared they were just splendid. It was a real plum- pudding. After doing all the cooking in the hat, he returned it to the owner in perfect condition, just as when he borrowed it.

I thought that was the most wonderful thing I had ever seen; and so it was in a sense, but it was all trickery. The quickness of the wizard's hands deceived the eyes of the onlookers. That was all!

When you come to think about the origin of the world, and the making of this plum- pudding we call the earth, you see something far more wonderful than anything Professor Anderson ever did. And the making of this world was a real thing. We have a real world made, out of real gas, and now we have real life on it, and real emotion; and it is as good a world as ever you like to think it. Some people say it is a bad world; but, as the song says:—

This world is not so bad a world
As some folks try to make it;
But whether good or whether bad
Depends on how you take it.

You saw how the sun and all the worlds grew out of fiery gas, and we left them whirling, cooling, and solidifying. But the puzzle is, How did the rocks grow out of gas? Yes, and how did water come from gas? I have tried to tell you how the two gases, oxygen and hydrogen, unite to form water. But there is the air we breathe! How did that come about? Well, that came just as the water did. The air we breathe is composed of oxygen and nitrogen, and if you were put into a room and shut close, so that no more air could get in, you would breathe the air, and your lungs would use up the oxygen, and when that was all gone you would be drowned in the nitrogen and the carbonic acid gas that you had produced by breathing.

We would say, when we found you, that "she has been suffocated." That would be right, too, for that is what would have happened. Nitrogen, by itself, drowns you. Oxygen, by itself, burns you up. But if you combine the two in proper quantities you get "fresh air." There are inventors at work now who are putting oxygen into big steel tubs, under enormous pressure, and supplying "fresh air" to houses. And we are going to have "fresh mountain air" supplied to city houses. That is all because we are finding out how the world was made, how it grew in response to the law. The world is what it is because it could not be anything else.

How many elements are there? There you have a question which once interested me very much. When I was a young man, studying geology and chemistry, I wanted to know how many elements there were; but the professor would never tell me. I was not used to the idea of a teacher being ignorant of the things he taught, so I wondered if the professor did not know. When I came to find out, nobody knows.

We say there are seventy or eighty "elements;" but if you will think it out, you will see that all the elements must have been in that gas which floated in the sky as a vast spiral nebula. In that gas there were the elements of the politicians and the strikers; the elements of the armies of men and the hosts of suffering women. In that gas there were the elements of the farm and the station, of the sheep and the wheat. In that gas there were all the ironclads and the torpedo boats, all the sin and sorrow and wickedness of earth. In that vast gaseous cloud which once floated in the death-cold realms of space

there were the elements of all that is. So the professor could not tell me how many elements there were. No, nobody could. All that is, all that was, all that ever will be, came from gas, and will return to gas!

What a lot of empty pride we have, and how conceited we are! But if people did as you do, and asked how the world came to be, they would be more humble and more considerate of each other. They would see that we are all poor human children in a flying world, and they would never submit to some of them starving while others had too much. They would want to abolish all human misery, and make the best of this little plum- pudding of a world, while they had the chance. But we do not know, and so we go on in misery and wickedness.

What is salt? There is an enormous amount of salt in the world, and salt is not an "element." No, salt is composed of two "elements"—i.e., chlorine and sodium. When I first learned that salt was "chloride of sodium" I thought I had learned a great deal, but I had not. I had only learned a name, and names are only tallies, clues, signs; they are not anything real. Thirty-five and a-half parts of chlorine and twenty-three of sodium form salt; and all the salt in the seas, all the salt in all the mines, is formed on that basis.

But do not ever think that you have had things explained to you when you have been told the names! You have got to think things out for yourself, and find out as much as you can; and when you have learned everything possible, you will find you are as far away from the end of things as ever. We are too small to be able to comprehend the vastness of the universe, or the making of this plum- pudding of a world. But we can learn quite a lot about it, and so come to enjoy life and see things as they are. Then we can have more wonderful things to talk about than hats or frocks or sheep or wool. We shall be able to see the miracle of the world we live in, and the glory of existence in this beautiful world of shadows and dreams.

The air is composed of two gases; so is water. The rocks and the stones are composed of gases; everything in the world is composed of gas; diamonds and brooks, men and mountains, grass and nutton. Everything was in that gas from which this world was developed. But how did the earth come from gas? It did. You can see that it must. Let me give you a little bit of philosophy. Herbert Spencer says that "the test of truth is the impossibility of conceiving of its negation." If you say that two and two are four, you realize that this is true, because you cannot think of two and two being five. If you say that the earth did not come from the nebular gas, then you have got to find the earth somewhere else, and you cannot do that. All the solid earth has crystallized out from gas. The water came from gas, and the air came from gas, and the rocks and trees came from gas that floated in the sky "once upon a time." How long since did the world consist of gas? Nobody can tell you that. Lord Kelvin used to say, as a great stretch, that the world must have taken thirty million years to grow to what it is; but other men said it must have taken a hundred million years. Then came the discovery of radium, and men say it must have taken a thousand million years; but what is the use of speculating with such a tiny measuring-rod as years? Time is not! Time is a human invention, and the story of how men invented calendars to measure time is very interesting, but I must not stop to explain that to you just now.

As the sun and the worlds kept whirling through space, they were gradually cooling; and as the temperature changed, the character of the elements appeared to change, and all things grew solid. The land appeared, and mountains rose in places, and deep seas developed, and stayed in one place for a long while; but the tides were savage, and the rains

were terrible, and the water carved the land, and frost and wind helped, and between them they gave us mountains and valleys, headlands and highlands, and all the diversities that to-day we think are "beautiful." The world grew hard and solid a long, long time ago, and it is almost fixed now; but if you watch the river on a rainy day, you will see that the high lands are being washed into the valleys, and the world is wearing down all the time. Nothing is fixed. Nothing endures for ever. All is change, and all things have their little hour and pass away.

Next Lesson: The Beginning of Life

In New Zealand

By J. A. McDonald

ON the eve of my departure from New Zealand it is perhaps fitting that I should briefly record my observations of this section of the world. Organizations and individuals, as in the case of my last article,* may not be entirely pleased with this summary, but it is not written for this purpose. If it were it would be vastly different, but, nevertheless, erroneous.

I have toured New Zealand for the past seven months, and in this time have addressed eighty-eight meetings in various parts of the Dominion. These meetings varied in numbers from audiences of several hundreds down to one diminutive gathering of five individuals.

It could hardly be expected that New Zealand should be in the forefront of revolutionary nations. The proper setting is not here to create the revolutionary atmosphere. The industrial development is much behind that of even the other colonial sections of the world. In the matter of wealth production and distribution, this country is in a class by itself.

The great national advantages of the country which make cattle and sheep raising possible to an extent unknown elsewhere, coupled with the geographical position and consequent distance from the world market, have tended to discourage manufacturing enterprise and fostered the interests of the primary producers.

All legislation is carried out with the end in view—will this prove of assistance to the farming and dairying interests? No government could long maintain its prestige that did not place uppermost the needs and requirements of the man on the land. The present Reform Government was elected by the rural population, and a glance over the legislative output suffices to show to what extent the agrarian interests are able to manipulate the political machinery.

It has long been the custom for New Zealand governments to finance budding agriculturists who possess no means of their own. The funds for such purposes are easily obtainable from the old land. The very conservative nature of the government appeals strongly to the timid financial investor, who here finds no reason to anticipate anything of a radical nature in the way of legal enactments.

The World War has effected sweeping changes in the ranks of the landed proprietors. Previous to the war small farming was the general rule. The great demand for farm and dairy produce during the period of hostilities gave to those in a favorable position an opportunity to extend their holdings, and to-day the two extremes—very large and very small owners of land—are more apparent than ever. With increasing wealth ever follows increasing influence in parliamentary channels, and the last few sessions have seen numerous bills, for the assistance of the large holders, passed into law, while the little fellows, as usual, are given every inducement to become smaller still.

On the industrial field nothing in the line of big industry is visible. In Australia there was always the "Broken Hill Proprietary Co." for one to refer to in order to explain the functions of modern industrial capital, but, in this country, the student of economics must be an adept at abstract thinking. Big industry does not exist. Even in the field of

(Continued on page 4)

* See "Western Clarion," December 1, 1921.