

THE DISPATCH.

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The Solar System

The Sun

Continued

We are more concerned about the sun's function of providing us light and heat than any theory of what it may be composed. We live directly or indirectly on the products of the earth, and depend largely on past and present vegetation for artificial heat. The energy producing elements of food and fuel were stored up through the influence of the sun. The energy of fuel is well illustrated by the saying "George Stephenson drove his locomotive by bottled sunbeams"

There is a marked difference between the light and heat rays of the sun. It is well known that sunlight consists of the blending of several separate colors which may be shown by an ordinary prism; but the heat rays are invisible and are not shown by refraction. They are sometimes called the dark rays of the sun.

The solar radiation of heat energy is enormous, and it is impossible for us to know or measure the temperature of the body of the sun. It is estimated that if the surface of the sun were coated with ice four thousand feet thick it would melt in one hour. The cause of solar heat is known to us only by theory. It is unreasonable that it is merely the cooling of a hot body, for it has been shown that it would lose its heat in less than three thousand years. Nor is it a mere burning mass for ice temperature would lower in a much shorter period. The best theory is that the sun is slowly contracting, and this contraction generates as much heat as is given off. This shrinkage is calculated to be about one hundred and eighty feet a year. This is so slight compared with the immense girth of the sun that it would take six thousand years to show any decrease in size to us; but there must come a time when this contraction will cease and the body of the sun begin to cool, but it is reckoned that it will take at least ten million years before the sun becomes too cold to support life on the earth. Lord Kelvin was an advocate of the contraction theory to account for the heat of the sun and the underground heat of the earth. The theory was first advanced by Helmholtz in 1854, and holds sway with the foremost scientists of today.

The contraction theory is in accord with the Nebular hypothesis, of the formation of the solar system; that is the sun and planets were formed from Nebula matter by the process of contraction caused by the force of gravity; that from a vast and chaotic mass of infinite fine particles of gaseous matter an orderly system developed.

Finland

Finland is that portion of Russian territory on the Baltic Sea between the Gulf of Bothnia and the Gulf of Finland. Its name has the same meaning as Fenland although but a small portion consists of actual marsh; but it is level in general and contains many lakes. There are fine forests of Conifers and a yearly quota of timber is added to the Baltic export. Agriculture is important supporting a splendid class of peasants. Finland approaches Denmark in the quality of its dairy products

The country is regarded as part of Scandinavia as it was first inhabited by the Scandinavians before the coming of the eastern people.

Geologically it rests upon the same submerged plateau as Sweden and was for a long period under the government of that country, so its people are more related to the Swedes in customs, temperament and manner of life than to any other nation, although nominally the territory is a part of Russia. The population numbers nearly three millions, mainly the descendants of certain Turanian tribes from the far east, and related to the Mongols and Manchus. They belong to the first wave of East-

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The Minerals of New Brunswick. Coal

Coal is compressed and mineralized vegetable matter, that formed in immense quantities in the Carboniferous Era.

This vegetation grew in vast swamps about the mouths of rivers and in shallow lakes or Carboniferous seas.

If we imagine some of our plants enlarged to the size of trees, we may get a conception of the plant life of that period. Then our common ferns were giant tree ferns growing densely together. The large calamites were the ancestors of the plant we call the horsetail. Our club moss was a large tree with clinging foliage.

The vegetation accumulated several hundred feet deep in the swamps of the river deltas and anores forming peat bogs which in time changed to coal.

The varieties of coal differ according to the degree of bituminization and the amount of volatile or gaseous matter contained in each. The evolution passes from peat to lignite or imperfect coal, then to soft or bituminous coal, and lastly Anthracite or hard coal, which contains the highest percentage of carbon, and the lowest percentage of gaseous matter and water.

Pressure hastens the change so we find hard coal in the folds of the Rocky Mountains; and an inferior grade of soft coal in the plains of Alberta.

The coal of Pennsylvania in the Alleghany Mountains is Anthracite while that of Nova Scotia is bituminous. The difference is not due to age but pressure due to the folding of the earth's crust.

Soft coal burns with more flame than hard coal because it contains more gases. It is used more extensively in steam engines than hard coal.

Much might be said of the fossils found in coal beds, and of the various stratifications of different types of coal, but we shall proceed to the more practical description of the coal fields of this province.

The coal of the Province of New Brunswick belongs to the Acadian field. During the Carboniferous age the provinces of New Brunswick and Nova Scotia was a great river delta on the eastern side of the northern land. The area of this field is estimated to be thirty six thousand square miles.

The middle Carboniferous contains the principal coal seams. This is found in Nova Scotia but is lacking in the

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Socialist Paper Talks Plainly

London, Jan. 2.—A dispatch to the Daily News from Rotterdam says:

The most significant of all the new year articles in the German press is that of Vorwarts, entitled "Peace Year, 1917." It gives an amazingly frank picture of Germany's internal position, attacks the Prussian gospel of force, and declares the task for the future is to find the road from war Socialism to peace Socialism. Admitting that it requires courage to describe 1917 as the peace year, the paper says: "Already mortally wounded, the beast of war roared about once more. His death agony will perhaps last four months and we shall have to carry on the struggle, but it must be in a double sense a struggle in defense against the enemy and a struggle for peace. There can be only one more short, final fight and the year 1917 will be the greatest in the history of the world's history, for it will again bring us peace."

It is quite clear, Vorwart's is really saying that Germany will have to make peace soon. It defines the annexationists and militarists in this declaration.

New York, Jan. 2.—In its leading editorial, this morning, the Times, under the caption, "Enforc-

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Important Announcement

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We have set apart this page of OUR PAPER for a SCHOOL and FARM Section. It will contain SPECIAL INFORMATION along the line of work prescribed for the public school as well as the general principles of agriculture as outlined by the specialists at work on its different branches.

A column will be devoted to questions and answers on points that may arise in school work.

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