

but there is small reason to believe that he was influenced by it.

The fact that northward among the icy seas there was an island—Vinland, Nyja Land or the New Land as the fourteenth century mapmakers called it—played no part in his calculations. When he sailed his caravels out against the pink dawn it was with an assured conviction, and a heroic purpose to find—"India, gold and rhuarb, mastic and slaves."

His greatness is seen in those long years of study which established his faith that the way to India lay across the unsailed western seas. He died unconvinced of the fact that he had found a new continent. He regarded himself not as the discoverer of a new world, but as a missionary of the gospel to the Indies, and as one who was to conquer the opulent East for Leon and Castile.

These two discoveries are not to be compared.

The Norse corsairs, coasting from Norway to Scotland, from Scotland to Iceland, from Iceland to Greenland, were caught in the grip of the currents that race toward the North American shore, and their discovery was one of the inevitable, unreasonable things of chance.

The dogmatic, sublime Genovese set sail with an assured purpose and upon a well grounded conviction. He did not gain the Indies, to be sure. This merely proved that his chain of logic was too short; not that it was badly linked. So for the present his name will not be written out to make a place for that of Bjarni, the son of Heriulf Bardsen.

VANCE THOMPSON.

PRIZE ESSAYS.

If one were to study the characteristic features of a locality, with a view to making it his home, the foremost consideration would undoubtedly be the moisture or rainfall.

When the Pioneers were en route for this country, Utah was described to them as a barren waste, almost devoid of vegetation. Upon entering Salt Lake valley they found this to be true, and it did not require a great length of time to ascertain the cause.

Utah lies in the very heart of the arid region of the United States, and it is not surprising that early travelers who had crossed it regarded it as undesirable, if not entirely unfit for human habitation.

Of the 82,000 square miles contained within the boundaries of Utah, only a small percentage can be brought under cultivation.

Unlike the largest portion of Uncle Sam's domain, Utah, with the exception of a small tract lying at the base of the Wasatch mountains between Farmington and Brigham City, depends entirely, for her farm products, upon irrigation.

The farming districts lie, for the most part, along the principal rivers or mountain streams. These are subject to great fluctuations resulting from the snows piled up in the mountains during the winter, which melt in May and June and swell the rivers to such proportions that great damage is sometimes done to property and crops.

Careful observations have shown that there has been an almost steady increase in the rainfall since the first settlement of this Territory. It is now 1.4 inches greater than during the first years of the settlement.

Several theories have been advanced to account for this fact. Some have said that it was owing to the interposition of Divine Providence in behalf of the Latter-day Saints. Some think it is due to the laying of railroad tracks and telegraph lines, but fail to show in what way this would affect the climate. Others incline to the volcanic theory, and still others to the climatic theory. But evidently the true explanation lies in what is known as the theory of human agencies.

In 1850 the area of Great Salt Lake was 1750 square miles, while in 1869 it had increased to 2166 square miles, showing that there had been a very material increase in the volume of water contained in the Lake.

It is also ascertained that there has been an increase in the amount of water carried by the rivers into the Lake.

It has been frequently noticed that wherever a settlement is established there follows an increase of the water supply.

Now let us inquire how man has modified the conditions by which the water supply is regulated or controlled. All the moisture that falls in Utah, either in the form of rain or snow, returns eventually to the air. A part is absorbed by vegetation and soil, only to be given again to the air; another part runs from the surface in streams; and still another part sinks into the ground and afterward emerges as springs.

A part of the water in the streams is taken up by the porous soils, and the remainder flows into Great Salt Lake.

Now the theory of human agencies supposes that man has modified these conditions in three different ways: First, by the cultivation of the soil; second, by the raising of herds; and third, by the cutting of trees.

By plowing the soil man has made it more porous and absorbent, so that a smaller percentage of the shower runs off. The farmer has also diverted the water from the streams and for irrigation purposes, has spread it over the land, from which it is absorbed by the air.

Cattle, horses and sheep have ranged over large sections of country and have destroyed or reduced the native grasses, thus removing all obstruction from the way of the water in finding its way to the streams instead of sinking.

The cutting of trees has also had the effect of increasing the streams. The removal of the foliage allows that part of the moisture which formerly fell on it and was thence evaporated, to reach the ground and run off in rills.

But the greatest source of increase in moisture lies in the ever extending area of vegetation, especially in the planting of trees. Every tree is a natural artesian well drawing daily two tons of water from deep down in the earth and scattering it as vapor through its leaves. This is the main source of dew. It is believed that the rains falling shortly after cutting the first crop of lucern are mainly due to the moisture given off by the lucern in becoming hay.

Accordingly Congress passed a law known as the "Timber Culture Act" for the encouragement of tree culture. The object is to increase the area of timber land for the purpose of augmenting the fall of rain.

Utah is almost wholly dependant upon local evaporation for her rainfall. Situated as we are, remote from large bodies of water, and surrounded by

towering ranges of mountains, the moisture carried by the winds is nearly all precipitated before reaching the Great Basin. And since the circulation of the moisture within the Great Basin is almost purely local, we may conclude that the farmer has been instrumental only in making that circulation more rapid, by removing obstructions.

If it is true that human agencies have been the cause of the increase in the water supply, the prospect for the future is indeed bright. For we may predict a still greater increase as the West becomes more thickly peopled.

This subject is worthy of study, for by systematic efforts the work of the farmer may be rendered still more effectual in increasing the amount of moisture.

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THE SOUTH POLE.

There sailed from the northern port of Dundee on Sept. 6, two of a small fleet of four whaling vessels—the other two sailed on the 8th—the fate of which will be followed with considerable interest. The mission, it is true, is mainly a commercial and prosaic one; but there are circumstances surrounding it which invest it with something of the halo of romance, says the *New York Advertiser*. The vessels are not bound for the icy waters of the north, which, within certain well defined limits at all events, are fairly familiar to mariners. Their destination is the Antarctic seas, a region of the globe to which there still clings much of the mystery and fascination which ever belongs to the unknown.

The voyage may, indeed, be said to be almost entirely one of discovery, and it is this fact which has attracted so much attention to the departure of the four Dundee whalers, and which will cause many, both in this country and elsewhere, to look with more than usual anxiety for their safe return.

For a number of years past the "industry" associated with the shores of Greenland, and which at one time was of considerable importance, has been steadily on the decline. There was much capital invested in it, but latterly there has been little or no return, and often there has been a very serious loss.

Enterprise, however, knows no limits, and it cannot find scope in one part of the world. It is only in accordance with the fitness of things that this last expedition to "new ground" should have been fitted out by British capital and be dominated by British pluck. Men experienced in such matters believe that the harvest which is now denied them in the far North will be found in the far South, and should this opinion be confirmed the discovery will be one of considerable importance. The strange thing is that serious attention has never been directed to this region before. It is true that half a century ago a London merchant did make some sort of an attempt to explore, from a commercial point of view, the Antarctic ocean, and obtained from the government of the day a grant of the Auckland Islands, the south of New Zealand, as a basis of operations: but this first attempt proved a failure, and he never made another. Whatever may be the ultimate result of the present expedition, it will certainly not be aban-