

like. The mystery of the Nile was solved by Stanley—the farthest north was reached by Nansen."

"When," said Mr. Chamberlin, "the diatoms were first discovered, now over a hundred years ago, they were rightly regarded as plants; and were placed among the Algae. But later, at the time Ehrenberg wrote, most observers considered that they belonged to the animal kingdom. With our present knowledge, however, there is little well-grounded doubt that they are plants. Although one ought not to condemn too severely a view founded largely upon the truly remarkable powers of movement possessed by some species.

"The single cell of which a diatom consists, known as a frustule, is so small as to be invisible to the naked eye, and when an average sized one is magnified four hundred diameters, it appears only one-fourth of an inch in length. The diatoms are readily recognized by its brown color. But its chief characteristic is the silicious cell which it secretes about itself. This shell is made up of two similar halves, or valves, fitting together like the cover does upon a pill box. The rim of a valve is called the 'hoop,' 'zone' or 'connecting membrane.' The view in which the observer sees the hoop, is the zonal view; that in which he sees the valve itself is the valvular view.

"The form structure and markings of the diatom valves are exceedingly complex and beautiful, and are also of great importance, the classification of their organisms being based entirely upon these features. The sculpturings of the valves may be lines, areolations, or bosses. The patterns made by these are of endless variety and beauty. In no other objects in nature do natural lines represent mathematical curves with such exactness and perfection as they do in the diatoms.

"As a convenience we may arrange the diatoms with regard to shape, under two great heads; the first embraces those forms more or less linear or bacillar in outline; and includes most fresh water species; the second embraces those having a more or less discoid shape, and includes marine species almost exclusively. This division is not a scientific one, but it is a great convenience, and as a practical division holds good; although many bacillar forms are marine and some discoid forms occur in fresh water.

One of the most remarkable things connected with the diatoms is the power of movement which some of them possess. The boat-shaped Navicula moves forward in a straight line with considerable rapidity. Others move with a swagging motion. One form progresses by turning end over end, attaching first one extremity and then the other. When united side by side into chains, contiguous diatoms often slide back and forth on each other.

"The commonest method of multiplication among diatoms is a simple division of the cell into two. The valves separate, the living contents divide in two, and two new valves are formed, each fitting within one of the old ones. By this process the diatoms continually decrease in size. Consequently a regeneration or rejuvenescence becomes necessary. The frustular contents escape from the valves, increase by growth to the normal size and then form entirely new valves about themselves. Sometimes the contents of two different individuals unite before this process occurs. According to the first method, supposing a diatom to divide once in twenty-four hours, the progeny of a single individual in one month would amount to 20,000,000,000.

"Diatoms have an exceedingly wide distribution. They are found in all parts of the ocean in great abundance.

And upon the land, they are found in even the tiniest streams of water. They have lived in great numbers in all recorded geological times; and immense deposits of their accumulated shells have been discovered, the marine deposits of Virginia and of the Redoubts beach in California, and the fresh water deposits underlying the great plains of Texas, being the best known American examples. Tripoli powder, which is composed of diatoms frustules is obtained from these deposits.

## OUTRAGES ON MORMON MISSIONARIES

A Washington dispatch to the Tribune says: Ex-Consul to Samoa Churchill is still in the city. Mr. Churchill is very much interested in the efforts that are being made by Senator Cannon to induce action of the state department in regard to the outrages perpetrated by residents of Samoa upon the Mormon missionaries' houses at Apia on December 28, 1896. Mr. Churchill was then American consul to Samoa, and reported the facts in the case to the state department by the first mail out of Apia after the occurrence.

As the affair took place after the northbound mail had left port, four weeks intervened before Mr. Churchill's report was started for America, and in this time he had full opportunity to investigate the outrage and get at the facts in the case. This he did, and in three separate and distinct reports to the American department of state, before his retirement from office upon the change of administration, gave a full history of the affair, but the last administration, being proverbially slow to protect American citizens abroad, did no more than acknowledge the receipt of Consul Churchill's communications. There the matter dropped until Mr. Churchill's arrival in America, when he called upon Senator Cannon and the two together called upon the secretary of state and laid the matter before him.

Consul Osborne, who is now in Apia, has been ordered by the department of state to make an investigation into the affair, but it will take at least four months for the department and the consul to come to a full understanding in the matter. Senator Cannon does not propose to allow the investigation to lag, and ex-Consul Churchill is also deeply interested in securing prompt remuneration for the outrages committed.

Mr. Churchill gives some very interesting facts in regard to the affair. He says that there were when he left Apia sixty-nine persons in Samoa registered at the consulate as American citizens and claiming the right of protection by this country. This is the whole number of American citizens resident in the island. The law of Samoa compels all citizens of foreign countries to be registered at their respective consulates, so this number cannot be questioned. Of this sixty-nine, twenty-nine were Mormon missionaries. Taking from the remainder the half-breeds, there were about ten others who were native Americans. So it will be seen that these twenty-nine missionaries composed the majority of what might be called real American citizens in Samoa. Mr. Churchill says that they were, as a class, an upright and respected set of men, and that they were taken to be representative American citizens.

"If," said Mr. Churchill, "the insult to these representative American citizens is going to be allowed to pass unchallenged and uncorrected by the United States, one can easily see what a demoralizing effect there will be in that kingdom with regard to American interests. Samoa naturally took the American missionaries to be truly representative of America, and it was

doubtless in this sense that the outrages were perpetrated upon the unprotected missionaries."

Consul Churchill took the case up with King Mafetoa and the board of three consuls which control affairs in Samoa. The king expressed great regret at the occurrence, but said that there was absolutely nothing that he could do in the matter. The outrages upon the American mission houses were committed by a set of Samoan rebels and not by loyal subjects. The king complained that should he send his standing army of four men into the rebel host he would be left without any army at all. The other members of the board of consuls advised Mr. Churchill to call in a warship and "let loose" upon the inhabitants, but Mr. Churchill claimed that this was impossible as he had no warship in the first place, and in the second place, he had to wait for instructions from his home government.

Mr. Churchill states that the greatest sufferers from the outrages was the head missionary, Mr. Cuff of Thatcher Ariz., who was an occupant of the mission houses, and whose home and personal effects were destroyed.

## BOXELDER STAKE CONFERENCE.

The quarterly conference of the Boxelder Stake of Zion convened in the tabernacle, Brigham City, Sunday, Jan. 23, 1898.

10 a. m.—Elder Rudger Clawson presided. There were present on the stand of the council of the Twelve, Elder Lorenzo Snow and Elder Geo. Teasdale, besides the leading brethren of the Stake.

The choir sang and prayer was offered by J. C. Wixom. The choir sang "For the strength of the hills we bless Thee."

Elder Rudger Clawson reported the condition of the Stake, and said that all its quorums and organizations were complete and coming together in their usual meetings. Spoke of the recent changes in the Stake Y. M. M. I. associations and Sunday schools and gave a favorable report of these organizations. He referred to the paying of fast donations and said that many were careless in this. Giving to the Lord, he said, does not make us poorer and in proof of this the speaker read a report of the amount spent in the Stake in building meeting houses during the past eight years:

In Willard, \$6,400; in Bear River City, \$5,885; in First ward Brigham City, \$5,000; in Second ward Brigham City, \$4,300; in Fourth ward Brigham City, \$4,000; in Mantua, \$3,500; in Three Mile Creek, \$2,200; in Honeyville, \$1,500; in North ward, \$1,400; finishing old tabernacle, \$6,013; rebuilding tabernacle, after the fire, \$15,720; total \$55,918.

The choir sang, "Softly beams the sacred dawning."

Elders Geo. Pitkin of Cache Stake spoke of the blessings gained through the building of places of worship.

Elder E. Pugmire reported the labors of the Y. M. M. I. A. missionaries in the Stake, and said they had been able to get about ninety per cent of the young men not attending improvement meetings to promise to become enrolled as active workers. Spoke of the kind treatment accorded them.

Elder Folkman of the M. I. A. missionaries spoke of their purpose among the young men and related missionary experiences to show the importance of the Elders' testimonies to the world.

Elder Geo. Teasdale addressed his remarks especially to the Sunday school children in the galleries. He encouraged them to resist evil.

Choir sang an anthem. Benediction by Bishop Durfee.

2 p. m.—After the opening exercises of singing and prayer by Elder Jas. M.