

laboring among and looking after nearly 4,000 Maoris, 1,800 or 2,000 miles away. On Sept. 27 word reached the Elders of this conference from Elder E. F. Richards of the appointment of Andrew Smith Jr. as president of the Australian mission with headquarters at Sydney. The same letter that conveyed the above news also intimated that Elder Richards would visit Queensland about the end of November. Some of us have counted the hours between the receipt of such glad news and the 25th of November, the date when Elders Richards and Smith, accompanied by Elder W. C. Castleton, clerk of the N. Z. mission, arrived in Brisbane. Through the visitors deciding to come up from Sydney in a different boat to the one they informed us they would come in, no one was at the wharf to meet them and they were under the necessity of navigating themselves to the suburb of Coorparoo, which, as Elder Richards had been here once before, was not a very difficult task.

On Nov. 26, all the Elders arrived in Coorparoo from their various fields of labor and at 11 a. m. an Elders' meeting was held, which lasted nearly four hours and was characterized by an abundance of the good cheer which the Spirit gives. Later on in the afternoon the brethren were taken for a drive round Brisbane.

Sunday, the 28th ult., was a busy day. The headquarters was alive pretty early. Sunday school convened at 9 a. m. The Sunday school children were briefly addressed by Elders Richards and Smith, the former of whom said a few words in Maori, to the evident delight of the children. Elder W. C. Castleton also sang a Maori song (hymn), which was fully appreciated by all present.

At 10:30 the first meeting of the conference convened in the Latter-day Saint's hall, South Brisbane. Quite a number of Saints and outsiders turned out to hear President Smith give a practical talk to those present. After the morning session, some of the Elders accompanied the Elders to old Father Duffin's, about a mile away, where the Sacrament was administered to him and the old Maori's heart was made to rejoice at meeting with and hearing his brethren. In the afternoon session Elder Richards presented the general authorities of the Church. Elder Benj. Clegg was released from his labors here and was called to go to Adelaide, south Australia. Wm. Armstrong was sustained as president of the Queensland conference, with the following brethren as travelling Elders, viz.: Elders R. H. Argyle, A. P. Hamilton, Wm. S. Faussett, H. S. Woodland, Wm. Robison and W. H. Coray. The rest of the time was taken up by addresses from Elder Castleton and President Smith on spiritual gifts, Church organization, etc.

In the evening Elder Smith addressed a meeting in North Brisbane, while President Richards spoke to about 100 people for nearly two hours in the South Brisbane hall.

After visiting among the Saints on the afternoon of the 29th of November, a Priesthood meeting convened in the evening at which all the Elders and nearly all the local Priesthood were present. Questions were asked and answered regarding the Priesthood and the duties of the branch officers, and peace and harmony restored where lately there has been some misunderstanding.

On Tuesday, the 30th of Nov., the Elders were astray very early, as they had some long distance calls to make and reach the steamer by noon.

Escorted by two of the Elders they got round, and 12:20, the time when the steamer left the wharf, found all the Elders on hand, both those who were going and those who are staying.

A sprinkling of Saints also attended to witness the steamers round the bend in the river amid the waving of handkerchiefs and hats. Although nothing was said, I guess there was not an Elder present who did not think of that time in the future when he shall pursue the same course when his labors are ended. At any rate in separating once again for their various fields the Elders all showed signs of the pleasure they felt in the meetings with and the encouragement given by the president. May God so encourage all His servants that the work of pruning the vineyard may hasten on apace.

WM. ARMSTRONG,

President of Queensland Conference.

### BONNEVILLE BASIN.

The regular lecture in the University public course was delivered Thursday according to announcement. The lecturer was Dr. J. E. Talmage and the subject was Lake Bonneville, a subject of more than passing interest in this locality, possessing as it does both general and local importance. The address was commenced promptly at the hour appointed. It consisted of an interesting description of the rise and fall of the lake volume and of the great climatic changes producing such marvellous results. The stereopticon was used with good effect, and a number of very interesting pictures were shown; some of these were reproductions of illustrations published by the United States geological survey, and others original photographs taken by the speaker. In addition maps, charts, and numerous specimens of lake products were displayed. Among the pictures were excellent illustrations of the shore lines, of the fault disturbances, and of the glacial deposits in the canyons of this valley; and photographs of the present living inhabitants of the lake.

The speaker disclaimed credit for much originality in the facts presented, and eulogized the earnest workers to whom we are indebted for knowledge of Lake Bonneville. Among these he mentioned Beckwith, Stansbury, Blake, Simpson, Bradley, King, Hayden, and more particularly Grove Karl Gilbert, whose excellent monograph on the subject is the standard work of reference. Lake Bonneville was named in honor of Capt. Bonneville, whose early explorations in this region have been recorded by Irving. The body of water once filled the eastern part of the Great Basin while in the western part was the smaller sister water body known as Lake Lahontan. The Great Basin, is not, as the name would indicate, a single depression, but in reality a series of depressions constituting a single drainage area. It is the largest closed drainage area in North America, embracing as it does the western half of Utah, including all that portion which drains westward from the Wasatch range and the plateaus, parts of southern Idaho, almost the whole of Nevada, the eastern portion of California, southeastern Oregon, and southwestern Wyoming.

In area the Great Basin is approximately 210,000 square miles. Lake Bonneville at the time of its greatest extent could be properly called an inland sea. It was fed from the snows of the Wasatch and Uintah mountains. It measured about 300 miles north and south and about 180 miles east and west, and covered about 19,750 square miles; this made it nearly the equal of Lake Huron in area. Of this great sea, Salt Lake is the largest remnant, and Utah and Sevier lakes are smaller fragmental remains. An ancient lake covered the central part of Utah, reached into Idaho and Nevada, and almost touched the Arizona line, and composed

among the principal divisions, (1) the main body, (2) Utah bay, (3) Sevier bay, (4) Escalante bay, and (5) Cache bay. These were defined by islands and archipelagos existing today as ranges of elevations. Escalante bay is claimed by some to have been always a separate water body. When the lake found an outlet it remained for a considerable time at one level and so recorded its shore history. Under other conditions when the water supply and loss by evaporation were balanced, the lake remained at fixed levels and so carved for itself a record on its shore line. These shore lines are well marked along the entire lake margin. The principal levels in descending order are, (1) the Bonneville shore line, the highest and most conspicuous, about 1,000 feet above the present level of the present lake; (2) the Intermediate shore lines, far less conspicuous than either the foregoing or the following; (3) Provo shore, about 400 feet below the Bonneville, and consequently about 600 feet above the present water level; (4) Stansbury shore line, well marked on Stansbury Island and occurring about 300 feet above present lake surface. The chronological order is (1) Intermediate; (2) Bonneville; (3) Provo; (4) Stansbury.

When the lake had stood for some time at its highest level, it found for itself an outlet; this occurs at Red Rock pass at the north end of Cache Valley, and a deep niche was cut in the rim of the lake basin at this point through which a mighty river flowed, rapidly lowering the level of the lake to that of the Provo shore line. To this river the name Bonneville river has been applied. It was larger than Niagara; it traversed Snake River valley, being tributary to the Columbia. From the Provo level to the present water level the lake has shrunk by desiccation. In this course of shrinkage the main divisions became isolated. During the lake epoch, and particularly at the Provo stage, many deltas were formed. Among the most conspicuous of these are the Logan delta, the Weber delta, City Creek delta, Rock Canyon delta, near Provo, and others near American Fork, Spanish Fork, and other canyons. In many places the shores are deformed by faults. An excellent example of a fault scarp is seen just north of this city. This may be traced from a point north of Willard City to Nephi, and it represents one of the great faults of the world. Volcanic forces were active in the lake area. In Millard county there are many well preserved craters, some of them recent. It is probable that lava has poured out on the lake bottom. The lake is now diminishing by desiccation. Sevier lake is about dried away and Utah lake would show the effect of shrinkage were it not that its level is regulated by its natural outflow. Water collected from Great Salt Lake in 1850 yielded to Dr. Gales's analysis 22.28 per cent solid matter; then the level rose and the water became more dilute. In 1869 it contained, according to Allen, 14.99 per cent solid matter. Analysis by Talmage December, 1885, showed 16.716 per cent solids; in August, 1889, 19.557 per cent, and in September, 1892, over 22 per cent.

The life of the lake includes, of course, but few species. Among the plants there is a variety of Algae, and among the animals the Brine Shrimp, larvae and pupae of a gnat, larvae of a tipula fly and a corixa.

It is probable that the maximum water level corresponded in time with the period of maximum glaciation in parts farther east.

Dr. Talmage deplored the fact that thus far no work has been done under State auspices in the investigation of Utah geology; the special work thus far done is due to the United States survey and to mining and other private interests.