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The Discovery of the New Zealand Cambrian

Last year marked the 50th anniversary of one of the most important paleontological discoveries in New Zealand this century.

On the afternoon of 14 January 1948 a Nelson schoolboy, Malcolm Simpson, a member of the party on Professor Benson's first visit to Cobb Valley, knocked a fragment off a low limestone mound on the floor of the valley to disclose indistinct fossils. Those were later identified as Late Middle Cambrian trilobites and represented the first discovery of Cambrian fossils in New Zealand. They are also New Zealand's oldest fossils. Further collecting trips to the locality were made in 1949 and 1950, and an account of those is given by Lillie (1988).

One of the present authors began investigating the history of the first (January 1948) trip about ten years ago and published two short notes on the subject (Watters 1988 and 1991). Recently, contact has again been made with Malcolm Simpson and also with Eric Heine, another member of the party. Both have provided valuable information on Professor Benson's visit. This is a shortened version of an account originally published in the GSNZ Historical Studies Newsletter 17: 21-29, 1998.

During the Christmas - New Year break of 1947/48, Professor Benson and his wife were on holiday in Nelson, staying with Sir Theodore Rigg. Rigg was Director of the Cawthron Institute and, like Benson, was a Quaker. Benson expressed a wish to visit the Cobb Valley area from where, with R.A. Keble of Melbourne, he had described graptolites 20 years before (Keble and Benson 1929). Rigg telephoned 'Jerry' Meredith who was in charge of Nelson District for the State Hydro Electricity Department asking him to facilitate Benson's trip (The Cobb River dam was under construction at the time).

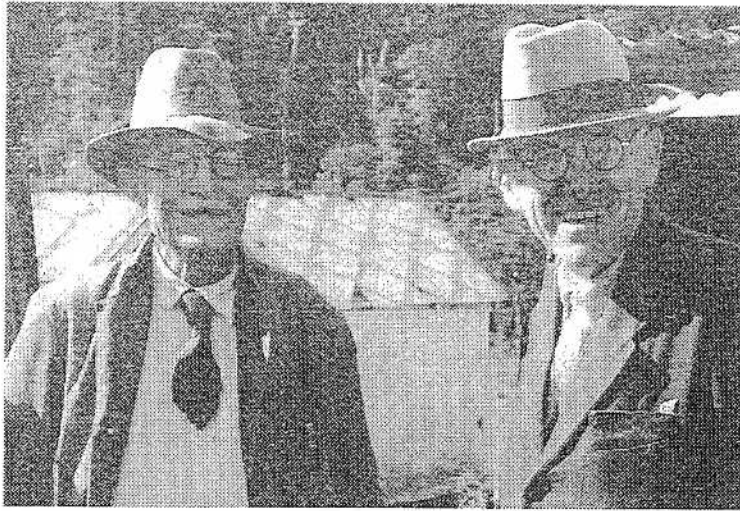
Meredith was a friend of Reg Webber, Head of Engineering at Nelson College, and he told Webber of the proposed journey. Webber, in turn, was a friend of Malcolm Simpson's family and, having studied geology under Professor Bartrum in Auckland in the 1920's, he had been encouraging Malcolm's strong interest in the subject. So when he learnt of Benson's field trip he arranged for Malcolm, then in Form 4 at Nelson College, to join the party. Webber himself did not join the group but he was an important member of the second expedition in January 1949 (Lillie, 1988, p.61).

So it was that on the morning of Tuesday 13 January 1948 Meredith picked up Benson and Malcolm Simpson in Nelson city. They travelled via Motueka to Upper Takaka and after a detour to Takaka and Onekaka went on to the Cobb Hydro village at the confluence of the Takaka and Cobb rivers. There they met Stuart Preston, Cobb Station superintendent, and went on with him to the abandoned Hume Pipe Company's asbestos quarry, to meet Henry Chaffey, a local prospector and identity. The remarkable story of Chaffey and his wife Annie is told in Henderson (1981).



Malcolm Simpson in January 1948

That night was spent in the hostel at the Hydro station and next morning, Wednesday 14 January, the three drove up the road to the Cobb Valley - a scenic drive through beech forest on to the ridge overlooking the valley and hydro works, then down the steep descent to the floor of the glacial valley where the construction of the dam and intakes was under way. Here Meredith remained for the afternoon to attend to business relating to the project. After lunch Benson and Simpson, under the guidance of Eric Heine, an engineer at the site, and a colleague, left for the temporary dam further up the valley. (Eric's brother, Arnold, was with the New Zealand Geological Survey from 1958-1962.) At the dam they moved into a dinghy powered with an outboard motor and, steered by Heine, they went to the head of Lake Halley, named after the resident engineer in charge of the construction site.



Prof. Benson (right) and Henry Chaffey, the "exile of Asbestos Cottage", 13th January, 1948

(Blair 1994)

Leaving the lake they went on foot further up the river flats. From previous visits Heine was aware of limestone outcrops on the valley floor and when the party reached a point about one mile east of Mt. Peel, they stopped at a low hillock of this limestone. It was on this rock prominence that Malcolm Simpson hammered off some of the weathered edge to expose the fresh limestone containing indistinct fossils. Malcolm passed these fossils to Benson but he showed little

enthusiasm, suggesting that they were "indistinguishable molluscan remains", and the limestone was part of the Ordovician Haupiri Series (reasonable assumptions in the light of what was known of the geology at the time). Today, Malcolm Simpson ascribes Benson's initial indifference at the time to his frustration with the course the expedition had taken so far. He was the only professional geologist in the party and considerable time had been spent on non-geological activities. Another factor would have been the effect on Benson of a strenuous two days of activity (he was 62 years old at the time). Whatever the circumstances, Benson, as an experienced geologist, would, in any case, have been cautious in making a field identification of the fragmentary material. Both he and Simpson collected specimens. The party then returned by boat and car to the excavations for the permanent earth dam before Meredith, Benson and Simpson continued to Nelson.

On his return to Dunedin, Benson discovered that the rock samples he had collected contained trilobites so he immediately wrote to Malcolm Simpson changing his on-the-spot identification of 'indistinguishable molluscan remains' (Watters 1991). He then sent them off to C.J. Stubblefield at the Geological Survey of Great Britain for identification. Three months later, Malcolm Simpson received an excited telephone call from



A weary Prof. Benson on his way down Lake Halley after visiting Trilobite Rock, 14th January, 1948.

M Simpson

Benson to let him know that the fossils- the first Cambrian fossils discovered in New Zealand – indicated a mid-Cambrian age.

Stubblefield regarded his identifications as tentative and asked Benson for further material. (A few weeks later he was to tell Benson that he could handle only a small amount of new material.) Benson replied saying that because of pressure of work there was little chance of getting more specimens.

In letter to Mr Meredith (15 October 1948) Benson mentioned that initially he had foreseen no immediate prospect of collecting more material because of the need to complete other research, notably his memoir on the Dunedin district. However, he went on to say that conditions in his department would probably now allow him to continue with his Cobb work (the main factor was the likely appointment of a successor to him in the department, which would leave him free to devote nearly all his time to research). In his letter he then outlined plans for a party to go with him to the Cobb Valley, collect more fossils, and carry out detailed field mapping. Benson's proposed new field trip grew into two (1949 and 1950), the story of which was told vividly by Arnold Lillie (1988).

A disappointing feature of the three trips was the lack of published results, apart from the short paper by Professor Benson in 1956. On 1 December 1949 Benson wrote to Mr Webber detailing his plans for a third trip to the Cobb early in 1950 and inviting him to once again join the party. Regrettably Webber could not accept ("We had not, alas, the company of Webber" –Lillie 1998, p.62). In his letter to Webber, Benson had also outlined his intentions for writing up the results of the three Cobb visits, but mentioned that this work, which would include the paleontological report and petrological study of the rocks collected, would come after he had finished his Dunedin Memoir. Sadly the memoir was not completed, and although an introduction to a proposed paper on Cobb geology was prepared (Lillie 1988, p.63), it was still in manuscript form at the time of Professor Benson's death in 1957.

The one set of field notes on the first Cobb expedition that we have seen are those of Malcolm Simpson. They are an impressive effort for a fourteen-year-old schoolboy. Later, Malcolm and his family moved to Auckland, and in a letter sent to Mr Meredith (4 September 1948) Professor Benson mentioned that he had strongly recommended Malcolm Simpson to Professor Bartrum. Malcolm finally decided against studying for a science degree and instead made a career in accountancy. He has, however, maintained an interest in geology and is a member of the Auckland branch of the Society.

The small number of fossils collected on the initial expedition were sent to Stubblefield in the U.K. On 4 December 1948, Benson wrote to the Registrar, University of Otago, applying for a research grant from the University of New Zealand to cover his proposed second expedition to the Cobb. In this letter he enlarged on the significance of the discovery of the fossils and mentioned that because of Dr Stubblefield's commitments to other work he (Benson) had made arrangements with Dr F.W. Whitehouse in Queensland to study further Cobb material. He also noted that Stubblefield had been able to have his conclusions on the fossils sent earlier confirmed by other Cambrian specialists attending the 18th session of the International

Geological Congress in London in 1948, namely Professors Poulsen and Howell (see also Benson 1956, pp 285-286). Lillie (1988, p.61) tells us that on the second (1949) trip "more than half a ton of limestone specimens, most of them crammed with agnostids" was collected. The third (1950) trip was aimed principally at producing a map of the area and gaining an understanding of the structure.

But Benson unfortunately had continuing difficulty with his specialists. Regarding the later collections, Lillie, in a letter to Watters dated 6 March 1988, says "Material was sent to Singleton after Whitehouse delayed any identification. I remember Benson grumbling about the lack of collaboration from both men." However, Singleton (Dr O.P. Singleton) did identify at least some of the specimens because Benson (1956) quotes identifications made by Singleton and Õpik (Dr A.A. Õpik), amongst others.

The problems that Benson had with his specialists help explain the lack of a published description of his Cobb Cambrian fauna. Very little of the material sent overseas for identification was returned to New Zealand and much of the ongoing study of the fossils, notably by Dr. R.A.Cooper, has been based on material collected in more recent years. In a personal communication, Dr Cooper has given us the subsequent history of the fossils sent to Singleton and Õpik.

In 1976, Õpik, then in Canberra, told Cooper that he had received only a small collection and this had been returned to Benson with his identifications. As far as Singleton is concerned, Cooper understood that he had received a considerable collection of Cobb material while he was completing his PhD at Cambridge on Victorian Cambrian and early Ordovician fossils. It is likely that Singleton had been recommended to Benson by Stubblefield. Singleton later went to Melbourne University and in 1979/80, he showed Cooper 4-6 trays of partially prepared Cobb limestone specimens. Cooper's attempts to have the whole collection returned to New Zealand were unsuccessful but he was given three or four specimens to take back.

Acknowledgements

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Postscript

As a fitting end to this story, the 1998 Harold Wellman Prize was awarded to Malcolm Simpson at the Geological Society Conference last December, fifty years after the discovery was made. Malcolm had vivid memories of the trip. He produced the original specimen he collected from the Cobb valley, in which agnostid trilobites are clearly visible.

Right: Malcolm Simpson, 50 years later in 1998, holding up the original piece of limestone he collected from Trilobite Rock.

