

HISTORY OF STRUCTURAL STUDIES AT FRENCHMANS CAP AND WARDS BLUFF 1964/65

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This short historical account is to accompany a suite of photographs of structural details provided to Mineral Resources Tasmania as part of their regional study of the Precambrian rocks of Western Tasmania. It covers field work carried out by the writer as part of a PhD project at the University of Tasmania, Hobart and acknowledges other people who were involved and helped in the process.

I came to Tasmania from Scotland in April 1964 to work on the rocks of the Frenchmans Cap (FC) area under Dr Alan Spry as my supervisor in the University Department of Geology, Hobart which was then under the professorship of S. Warren Carey. I was directed to Tasmania by Assistant Prof A. Kerr Pringle at the University of Aberdeen who had previously worked with Sam Carey in the oil industry in Papua New Guinea. Alan Spry was able to arrange a scholarship to be available from General Motors Holden for two years.

Previous work on the metamorphic rocks mainly to the west and north of FC had occurred in the 1950s in connection with the hydro-electric potential of the catchments by Carey, Wells (1955 & 1957), Mather (1955), McKellar, McLeod (1955), Spry (1957, 1962 and 1963), Spry and Zimmerman (1959) and in the 1960s by Dennis Gee (1963) in the Raglan Range and Sib McIntyre (1964) on the Collingwood River area. However, south of the Franklin River, Frenchmans Cap had not been mapped because of its remoteness.

Indeed, I was amazed at seeing whole mountain ranges in Tasmania that had hardly ever seen a geologist in complete contrast to the Scottish Highlands where generations of UK students had mapped and remapped every hill.

My first introduction to the area was flying in a light plane with Alan Spry and Dennis Gee over FC and along the Franklin River. Spry, on the ground, had got no further than Lake Vera, I believe, and had set up camp with Ramsay Ford and fought off leaches before retreating. This was followed by a field trip led by Spry to the Raglan Range with Dennis explaining the area he had mapped for his honours Project to colleague Chris Powell and myself.

Subsequently in May, I was taken into the FC area by the technical assistant in the Department, Bill Peterson, who as a keen bushwalker was able to show me how to survive in the Tasmanian bush. On that first trip, I began to understand the difficulties of access in the dense bush. Naturally being nearly winter, it snowed but I was assured it would be different in the summer season. I was on a steep learning curve. Bill carried the Department camera, a 17mm Olympus and took most of the small format photos 1-19. Next, I spent a week living in a fisherman's shack and mapping along the Lyell Highway before returning to Hobart.

While waiting for the field season, I was given the task of measuring the twinning pattern of Spry's albites in the schists which I did with a Universal Stage. At the same time, I had to learn to drive and buy my first car, a VW Beetle.

At the start of the field season, I spent a week alone camped and mapping along the more accessible Franklin Hills. In the absence of a field assistant, I never considered the safety aspect of work in the bush other than to hope I would avoid an injury. Only a few structural measurements survive.

I wondered how I would handle the main FC area on my own with only an occasional bushwalker around. Then fortunately I was contacted by Jim Peterson (Bill's older brother) who was just finishing an Honours Degree on the glaciation of the FC area. We agreed we could work together

over the summer and support each other as we collected relevant data. Importantly, Jim had a single lens reflex 35mm camera with a telephoto lens and we combined to take the structural photos 20-50.

We took up residence in the old hut at Lake Tahune having arranged an airdrop of provisions paid for by the Geology Department along with a rubber duckie for Jim's use on the lakes. The weather was mainly bad with depression after depression bringing in rain to the West Coast. On 25th December it snowed making my first Xmas in Tasmania a white one.

However, we were able to map, collect structural data, take rock samples and shoot photos on the high ridges. When the clouds were down, we concentrated on the lower ground and completed a traverse down Ness Creek and into the Livingstone Valley. We cut a track from Artichoke Valley down the creek to Lake Gertrude with the help of two climbers (Jack Pettigrew and Bryden Allan) who were waiting for clear weather to complete the first ascent of the SE face of FC. Their journal of the climb mentioned that it rained continually for seven days. JP had intended to carry out a depth survey of Lake Gertrude using the rubber duckie but found his echo sounder to be faulty. The traverse was not wasted because I had been able to record rock types and structures and take samples of dolomite.

Following that phase of the field work I attempted to find voluntary field assistants without success. Meanwhile, I compiled the mapping onto contoured base maps augmented by air photo interpretation.

At the end of the field season, I got a chance to visit the quartzites at Wards Bluff north of the Franklin River. The trip was inspired by geologist Sib McIntyre (now Corbett), a research assistant in the Geology Department. Sib had mapped an adjacent area at the Collingwood River and had always wanted to extend her work into Wards Bluff. We walked into the area from the Lyell Highway and camped for a couple of nights on the main range. We examined the quartzite outcrops along the range, measured and photographed the fold structures as shown in the series of photos included in this report. We noted the prominent NE dipping schistosity in the quartzites which was in the axial surface of recumbent folds with near horizontal axes. We recognised that the sedimentary bedding defining the folds had no tectonic surface along it, so these were the earliest folds in any deformation sequence.

I was now realising the extent of the challenge I had taken on by accepting this FC project sight unseen and was seriously worried about the difficulties of access for my field work in this rugged area with its thick bush and bad weather. Meanwhile my supervisor Spry was absent on a sabbatical to Imperial College in London.

Eventually, in May I was able to get the support of a geology student Bob Hall and we planned a field trip into the area of FC. We got as far as Lake Vera Hut and in the morning found the area covered in snow. That was when I took the decision to pull out of the trip and end my project and told the astonished Bob.

Back in Hobart, I wrote a small report summarising my lack of progress after one year because of the logistical difficulties encountered and discussed it with Prof Carey. To my relief, he was completely sympathetic and said he had misgivings about the project from the start! We talked about the possibility of other projects one of which I eventually selected--- a geochemical and mineralogical project on unusual feldspars at Tennant Creek NT under the auspices and logistical support of Geopeko Ltd, an Australian exploration and mining company led by John Elliston, one of Prof Carey's first students.

To their credit and my appreciation, the Geology Dept persevered with me and kept my scholarships going until the eventual completion of my new project under a new supervisor Dr JC van Moort, a Dutch geochemist.

In retrospect, the reasons for giving up the structural project at FC were---

I had accepted the project sight unseen without an appreciation of how rugged and remote the FC area was, how bad the weather could be, how thick the bush, the restricted summer field seasons and the lack of logistical support. I had already missed my first possible field season by turning up in April. The Bureau of Meteorology gives the December 1964 rainfall at Lake Margaret as 402.9 mm and 4016.5mm for the year. That is the fifth highest December rainfall total since 1938.

The pluses for the project that attracted me were—it was an area of impressive mountain scenery, untouched geologically, with magnificent structural problems in the type of metamorphic rocks with which I was familiar.

To this day, the area has never been mapped in detail by University or Geological Survey geologists. It would require a team of geologists with dedicated logistical support and line cutting in the lower reaches to resolve the structural problems and map the geology. It is doubtful that such an invasive approach would be allowed today by Government authorities in a National Park. The area is now part of a current re-appraisal of the entire Tyennan Core by Mineral Resources Tasmania using helicopters, modern remote sensing, structural expertise and ground truthing.

Subsequently, in 1972, when I was working for Western Mining Corporation in Kalgoorlie, I wrote a basic account of the geology of the area some eight years after the field work which was published as “The Reconnaissance Geology of the Frenchmans Cap National Park” in Roy Soc Tasm, Vol 107, 1974.

REFERENCES

DUNCAN, D.M., 1974. Reconnaissance Geology of the Frenchmans Cap National Park. Pap. Roy. Soc. Tasm., Vol.107, pp. 191- 195.

GEE, R.D., 1963. Structure and petrology of the Raglan Range. Bull. Geol. Surv. Tasm. 47.

MATHER, R.P., 1955. Geology of the Andrew River Area (map square 3778). Unpub. Rept. Hydro-Elec. Comm. Tasmania.

McINTYRE, E.B., 1964. Structure and petrology of the Collingwood area. B. Sc. Hons. Thesis, Univ. Tasm. (unpubl).

McLEOD, I.R., 1955. The Geology of the Mt Fincham Area (map square 3780). Unpub. Rept. Hydro-Elec. Comm. Tasmania.

SPRY, A.H., 1957. The Precambrian rocks of Tasmania. Part 11. Mt Mary area. Pap. Proc. Roy. Soc. Tasm. 91: 95-108.

SPRY, A.H., 1962. Some aspects of the stratigraphy, structure and petrology of the Precambrian rocks of Tasmania. Ph.D. thesis, Univ. Tasm. (unpubl.).

SPRY, A.H., 1963a. The Precambrian rocks of Tasmania, Part V. Petrology and structure of the Frenchmans Cap area. Pap. Proc. R. Soc. Tasm. 97: 105- 127.

SPRY, A.H., 1963 b. The chronological analysis of crystallisation and deformation of some Tasmanian Precambrian rocks. J. Geol. Soc. Aust. 10: 193-208.

SPRY, A. H. & Zimmerman D., 1959. The Precambrian rocks of Tasmania, Part 1V. Mt Mullens area. Pap. Proc. R. Soc. Tasm. 93: 1-9.

PETERSON, J.A., 1966. Glaciation of the Frenchmans Cap National Park. Pap. Roy. Soc. Tasm., Vol. 100, pp. 117- 129.

WELLS, B., 1955. Geology of map square 3978 etc. Unpubl. Rept. Hydro-Elec. Comm. Tasmania.

WELLS, B., 1957. Geology of the Jane River. Unpubl. Rept. Hydro-Elec. Comm. Tasm.

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PHOTOGRAPHS AS SUPPLIED TO MRT