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PRELIMINARY REPORT ON PROBABLE LOWER CARBONIFEROUS FOSSILS FROM STATION CREEK AREA, FITZROY BASIN (WESTRALIAN OIL LIMITED, PERMIT 106H)

by

P.J. Jones & G.A. Thomas

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INTRODUCTION

In 1958, Mr. J. Rade of Westralian Oil Limited made a geological investigation of Permit 106H, in the Napier Range area, of the northern part of the Fitzroy Basin. He mapped a large area in the southern portion of this permit as probable Laurel Formation of Lower Carboniferous age. He also collected a considerable number of samples, which were later forwarded to the Bureau of Mineral Resources for palaeontological examination. The location of these samples are shown on the sketch-maps which accompany this report. Also one sample (viz., STO 12) was forwarded for porosity and permeability tests, which has been passed on to Mr. M.C. Konecki of the Bureau of Mineral Resources for his attention.

MICROPALAEONTOLOGICAL EXAMINATION

The examination by P. J. Jones of the ostracods extracted from the samples collected from Station Creek (viz., STN 104, STN 105, STN 106, and STO 10) by Mr. Rade, indicates that he has correctly assigned the calcarenite beds of this area to the Lower Carboniferous Laurel Formation. The ostracods from these Station Creek localities have been previsionally determined as:

STO 10:	*Bairdia* sp. E.	STN 105:	*Cavellina* sp.
	Cavellina sp.		*Cryptophyllus* sp.
	Cryptophyllus sp.		"*Jonesina*" sp. nov. 1
	"*Jonesina*" sp. nov. 1		"*Leptoprimitia*" sp. nov.
	"*Leptoprimitia*" sp. nov.		*Paraparchites* sp.
	Macrocypris sp.		
	Paraparchites sp.		
STN 106:	*Cryptophyllus* sp.	STN 104:	*Cavellina* sp.
	Paraparchites sp.		"*Jonesina*" sp. nov. 1
			Paraparchites sp.

This ostracod fauna includes species which have been previously found in the type sections of the Laurel Formation (e.g., species belonging to the genera *Paraparchites*, *Cavellina*, *Cryptophyllus* and species tentatively assigned to the genera "*Jonesina*", and "*Leptoprimitia*"). Other species have been previously found in beds of proven Lower Carboniferous age, e.g., *Bairdia* sp. E in the Septimus Limestone, and *Macrocypris* sp. in the subsurface Lower Carboniferous section of Meda No. 2.

On the other hand, the sample collected from Locality STN3 contains ostracods almost exclusively belonging to the family Kloedenellidae similar to the assemblage found in the Upper Devonian Fairfields Beds at Oscar Hill. Samples from localities NEW 1, CYR 1, LEN 7D, PUN 1, VAL 7, HILL 4 and HILL 7 were examined for ostracods, but none were found.

MACROPALAEONTOLOGICAL EXAMINATION

The brachiopods found in the samples were examined by Dr. J. J. Veevers and G. A. Thomas. Dr. Veevers has previously identified brachiopods of his Avonia proteus zone (the uppermost brachiopod zone of the Upper Devonian of the Fitzroy Basin, which is represented mainly by the Fairfield Beds) from Dr. C. Teichert's collections from localities near Mr. Rade's localities HILL 7, HILL 4, VAL 7, PUN 1, CYR 1, LEN 7D, NEW 1, and STN 3. The samples collected from localities STO 10, STN 104, STN 105 and STN 106 were also examined by Dr. Veevers, but apart from specimens of ribbed spiriferids found in STN 106 and STO 10, no other determinable brachiopods were found.

G.A. Thomas reports that the brachiopods are not well preserved, but some can be determined.

CYR 1 Cyrtospirifer sp.

Cyrtospirifer (Tenticospirifer ?) sp.

These two species appear to be the same as known elsewhere from the Fairfield Beds, e.g., from Oscar Hill. Hence this locality is of Upper Devonian age.

STN3, Station Creek

Cyrtospirifer sp.

Unidentified athyrid.

The species of Cyrtospirifer cannot be identified, but the presence of the genus indicates a probably Upper Devonian age.

STN 104 and STN 105, Station Creek

Camarotoechia sp.

STN 106 and STO 10, Station Creek

Camarotoechia sp.

Spirifer (Unispirifer ?) sp.

The Camarotoechia sp. from STN 104, STN 105, STN 106 and STO 10 cannot be determined. Spirifer (Unispirifer ?) sp. is a small poorly preserved form, which in size, shape and costation, seems to be close to a species well known from the outcropping Laurel Formation in the type area. Spiriferids of this group are characteristic of the early Lower Carboniferous. On this tentative identification, the beds at STN 106 and STO 10 are probably of Lower Carboniferous age, but better material is needed to confirm this.

CONCLUSIONS

The ostracods and thepresence of Spirifer (Unispirifer ?) sp. suggest a Lower Carboniferous age, probably the same as the Laurel Formation, for the samples collected by Mr. Rade from the

Station Creek area. This differs from the previous findings of Dr. Veevers as the Station Creek localities STO 10, STN 104, STN 105, and STN 106 are only one mile or less distance from Dr. Teichert's localities M8 and M9, which Dr. Veevers (1959, BMR Bull.45, in press) includes within his Avonia proteus zone. Neither Avonia proteus Veevers 1959 nor Meristella caprina Veevers 1959 has been found in the Station Creek samples collected by Mr. Rade, although these brachiopods are reported to occur in localities M8 and M9 (Veevers, 1959). Therefore, the presence of Lower Carboniferous ostracods and the Lower Carboniferous brachiopod Spirifer (Unispirifer ?) sp., together with the absence of A. proteus and M. caprina in Mr. Rade's samples, indicates a discrepancy which could have a number of possible explanations, e.g.:

1. The specimens reported from localities M8 and M9 were collected elsewhere, and were incorrectly labelled.

2. The specimens reported from localities M8 and M9 were correctly located, but

   (a) the rocks in which they were found may not have been in situ, but may have been carried downstream from the upper reaches of the creek.

   (b) Mr. Rade may not have collected from the particular beds which contain the species A. proteus and M. caprina.

   (c) The Lower Carboniferous beds may unconformably overlie the Upper Devonian, as they appear to in the type area of the Laurel Formation. The localities M8 and M9 could be from an inlier of Upper Devonian.

Whether the record of A. proteus and M. caprina in the Station Creek area is authentic or not, can only be decided by further detailed collecting, and re-examination of the field relationships. Ignoring the two fossils reported from M8 and M9, the fossils collected by Mr. Rade indicate that the equivalent of the Laurel Formation is probably present. On the other hand, if their reported occurrence from in situ outcrop is confirmed, then the field relationships between the Spirifer (Unispirifer ?) - ostracod beds, and the A. proteus beds would have to be examined. If the A. proteus localities were distinct from the Spirifer (Unispirifer ?) localities, then the above explanation 2 (c) may be correct. On the other hand, if A. proteus occurred together with Spirifer (Unispirifer ?) and the Lower Carboniferous ostracods, the explanation might be that there is a continuous succession from late Devonian to early Carboniferous with a transitional fauna.

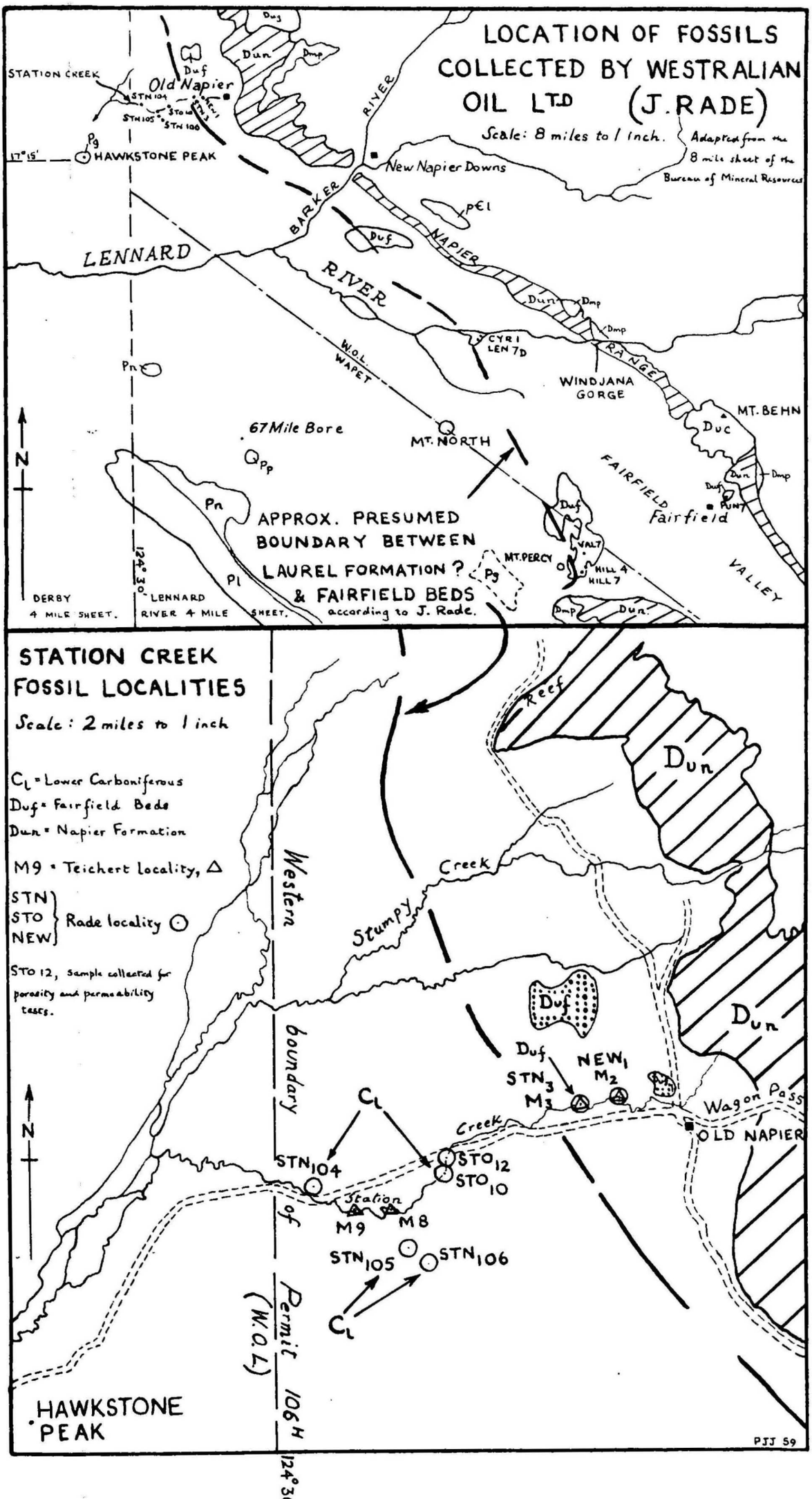
ENCLOSURES

Location of fossils collected by Westralian Oil Limited (J. Rade).

Station Creek fossil localities.

Geological Section,
CANBERRA.

24th July, 1959.


LOCATION OF FOSSILS COLLECTED BY WESTRALIAN OIL LTD (J. RADE)
Scale: 8 miles to 1 inch. Adapted from the 8 mile sheet of the Bureau of Mineral Resources
STATION CREEK
Old Napier
STN 104
STO 11
STO 12
STN 105
STN 106
HAWKSTONE PEAK
17° 15'
RIVER
New Napier Downs
BARKER
LENNARD
RIVER
NAPIER
RANGE
CYRIL LEN 7D
W.O.L. WAPET
WINDJANA GORGE
MT. BEHN
67 Mile Bore
MT. NORTH
FAIRFIELD
Fairfield
VALLEY
APPROX. PRESUMED BOUNDARY BETWEEN LAUREL FORMATION ? & FAIRFIELD BEDS according to J. Rade.
MT. PERCY
HILL 4
HILL 7
VALT
DERBY 4 MILE SHEET.
LENNARD RIVER 4 MILE SHEET.
124° 30'
STATION CREEK FOSSIL LOCALITIES
Scale: 2 miles to 1 inch
Cl = Lower Carboniferous
Duf = Fairfield Beds
Dun = Napier Formation
M9 = Teichert locality, △
STN STO NEW } Rade locality ⊙
STO 12, sample collected for porosity and permeability tests.
Reef
Western Creek
Stumpy Creek
boundary of Permit (W.O.L.)
STN104
STO12
STO10
Station M9
M8
STN105
STN106
NEW1
M2
STN3
M3
Wagon Pass
OLD NAPIER
HAWKSTONE PEAK
106H
PJJ 59
17° 15'
124° 30'