1945/75

### COMMONWEALTH OF AUSTRALIA

# DEPARTMENT OF NATIONAL DEVELOPMENT BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

**RECORDS:** 

1945/75

Report on Samples from a Bore at Mt. Burr,
Hundred of Riddoch, South Australia

Ъу

I. Crespin

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DEPARTMENT OF SUPPLY & SHIPPING. Mineral Resources Survey Branch. REPORT ON SAMPLES FROM A BORE AT MT. BURR, HUNDRIED OF RIDDOCH, SOUTH AUSTRALIA. Report No. 1945/75. INTRODUCTION. Ten samples from a bore, which was drilled for water, at Mt. Burr, Hundred of Riddoch, southeastern South Australia, were submitted by the Director of Mines, Mines Department, Adelaide, for micropalaeontological examination. The first sample was taken at the depth of 19-35 feet and the last at 417-425 feet. As these samples are the first of a series from bores in the Mt. Burr area, the fossil content of each sample is listed in detail, so that it can form a basis for the work on samples from other bores. At the end of the report a complete list of fossils determined, together with their distribution in the samples, is given. The remarks made on the possible bearing of the information derived from examination of the samples on the stratigraphy of the area are necessarily brief, because the conclusions drawn from the results of the examination are similar to those being presented in a lengthy report on the Nelson Bore, from which samples of cores and drill cuttings have been received and examined over the last five years. This bore is situated in southwestern Victoria, about 45 miles southeast of Mt. Burr. DESCRIPTION OF SAMPLES. 19-35 feet - Dark cream coloured dure limestone. The foreminifera and bryozoa are poorly preserved. Muserous angular quartz grains are also present. C. refulgens; Discorbis dimidiate, D. australis, D. turbo,
D. collinsi, Strebius beccarii, Elphidium cripsum, BRYOZA: Fragments too worn for determination. Calcareous sandstone with Discorbis dimidiata 93-101 feet and tuffaceous material
Hard gritty limestone with Streblus beccarii and
fragments of flint 101-148 feet -148-205 feet - Hard white limestone and fragments of flint , which shows traces of bryozoal fragments. 205-250 feet. -Chalky, white bryozoal limestone. Fossils are not well preserved. FORAMINIFERA: Geudryina rugosa, G. (Pseudogaudryina) erespinae, Textularia carinata, T.sagittula, Dorothia sp., Ammosphaeroidina sphaeroidiniforme, Triferina bradyi, Cassidulina subslobosa, C. laevigata, Dismoidella elegantissima, Globigerina bulloides, Globigerinoides trilobus, Pullenia quinqueloba, Buliminella apiculata, Carpenteria rotali-formis, Cibicides lobatulus, C. sp., Discorbis, balcombensis, D.berth-eloti, Biphonina australis, Anomalina nomionoides, A. glabrata, Eponides concentricus, E. repandus, E. scabriculus, Gyroidina soldanii, Elphidium crassatum.

SPONDIDA: Tretognite on.

C. Isilcella, Prioro de bicos, Platologa Milana, Cornus, C. Isilcella, Prioro de bicos, Platologa Milana, Cornus, Company, Prior Carlos, Company, Prior Carlos, Prioro de Carlos, Prioro de Carlos, Prioro de Carlos, Prioro de Carlos, Prior de Car

BRACHIOPODA: Nurrevia entimuliformia

OSTRACODA: Brthceyerle tomefects

250-300 feet - Chalky white bryoscal limestons. The formulators include numerous small rotalines, and amongst the bryosca, fragments of cyclostomatous species are more common than those of the chellostomatous forms.

ARTHORDA: Houses tenisoni

Victoria dicario. Coloria concessoro. Conc

BRACHIOSSDA. Sevetanore scuttreatus, ef. Becetivria ap.

300-350 feet. - Chaiky limestone, with fossils not well preserved

riquetra. Triarina bradzi, Boltvina robda, Jacquella aubglobose.
Levisata Guitulia produca. C. producti. Jacquella aubglobose.
Carpenteria rotalifornia. Victorialia plecia, Cibicides uncerianua. C. do.
C. lobetulus. I G. sorrotas. Berosallenia ilizoni. Affaeliae glabrata.
Plvinulinella tenuinargioais. Gyroidia soldeni. Discorbis orbicularia.
Dionides concenticus. Scandigulus. Foogadus. J. 30. nov., Libbidius.
Crassatus. E. Gredostup spinose vor., E. Cimpaeni.

SPONGIDA: Ecionema newberyi; Bactronella australia

ANTHOZOA: Monses tenisoni

BEYOZOA: Celleria rigida ver. peresola, Mambracipora macrostora Retenora bestiaga, Uriala ecropora, Idmones tricoca, Desmoolagioccia sp. Testicavas schosporassis.

350-400 feet - Priable, chalky white, crystalline limestone, with fossils indetermiate.

400-417 feet - Chalky limestone, with few foraminifera and numerous bryozoa.

PORABIRISTRA: Dorothia cerri, Cassidulina Isevisata, Globiserinoides trilocus, Cibicides ungerianus, Anchalina nonionoides, Spirillina insequalis, Reronalienta wilsoni, Eponides repandus, E. concentricus, Elphidium creaninas

ANTH OZOA: Monage tenisoni

Vincularia izanta Grateropora estale, combigua, por parte de la combigua de la co

417-625 feet whitish, chelky limestone, with numerous angular quartz grains and poorly preserved fossils.

Pseudomudryine) crespinse, concentricus, con

SPONGIDA: Beigness newberyl, Bectronella austrelis

Environcela elongoto, Prostomeria gibbericollia; Adeonellonala collica, Contagle products, Subjectivella accurrantia, Schizocorella so., S. orbiculifers, Spiropore verticillate, Idmones tricona, I. incurva, I. reminata Mocynoccia proboscides, Morgere Enberculate, Desmoolageoccia so.

OSTRACODA: Gytherooteron batesfordense, Loxoconche quatrelia. Cytherella sp. nov.

Notes on the Bore Gemples and their Possil Content.

Two Stages of the Tertiery as developed in Southeastern Australia are present in the Mt. Burr bore, namely:

- 1. "Werrikooian Stage (Upper Fliocene) 2. Janjukian Stage (Middle Miocene)
- the Merrikoolan Stage is represented by three samples between the depths of 19 feet and 148 feet. The sample at 19-35 feet is a dune limestone containing a few determinable species of foraminifers; that at 93-101 feet consists of fragments of tuffaceous material with some calcarcous sandstone; and that at 101-148 feet is a gritty limestone with fragments of flinty rock, probably derived from the underlying Middle Miocene. The foraminiferal species present are found in the shore sands around Southeastern Australia and living in the adjacent shallow water. Bryozoel remains are too poorly preserved for determination.

2. The beds referred to the Janjukian Stage occur from 148 feet down to 425 feet, the base of the bore.

The rooks are hard white limestone with gragments of flist pensing downwards into chalky, bryoscal limestone. The fossil assemblage in the limestones is typical of that found in rocks refereble to the Janjukian Stage in southeastern South Austreliaand southwestern Victoria. The specimens are poorly preserved, and are chalky white in colour and chalky in texture.

A feature of the Mt. Burr bore; and of other bores in the area is the mixed assemblage of Jenjukian and Balcombian species in the beds referred to the Janjukian. To cover this mixed essemblage of species. Hell and Fritcherd, in 1904; instituted the term "Berwonian Series". This point will be discussed at length in the forth-coming report on the Delson Bore.

Pornshifers are fairly common in the Janjukian beds in the Mt. Burr Bore, but are poorly preserved. They include species which are characteristic of both the Beloombian and Jenjukian Stages in eastern Victoria. Amongst the typical Delecables species are Canderina (Saudoca devina) over 1000. Discording beloading as a capticulus. Correnteria foreignate, inchesive saudocata, inchesive saudocata, inchesive saudocata, inchesive saudocata and lighting craticulus. To sever, most of them range upwardings the upderlying Janjukian in castern Victoria. The most important Janjukian species is Victorials places, which is not recorded in beds above the Janjukian in sathern central and eastern Victoria. The common Janjukian form (Calindias is absent in the Mt. Burr camples but it is a persistent associate of V. places in samples from the same horizon in the Mc. sociate of V. places in samples from the same horizon in the Molson Bore.

The three enonges recorded are typical of the Middle Miocene bryosoel limestones. Scionema spicules ere foirly common in some anuples.

Bryomom are the most ebundant fossile in the limestones. They are not well preserved, otherwise the list given at the end of the report would be considerably lengthened. Many of the species were originally described from the Mt. Gembier limeatones, and others are common in the Dalcombian limestones in Victoria, some ranging upwards from the subjecent Jenjukian. The most important species is Aspidostone strengie which isnot recorded in beds above the Janjukian in Victoria.

Brechiopode are scarce, only three species being found. in the bryozoel limestones of Victoria, but the form tentatively referred to Messibyria is rare, the only other specimen in the Commonwealth Palacontalogical Collection being from Bo. 11 Bore Ph Colquhoun, Gippsland, Victoria.

Ostrocode are unusually scarce. Amongst the species recorded is <u>Cytheropteron betesfordense</u>, originally described from the Banjukian deposits in bores in Gippsland, Victoria.

### Stretigraphical Notes.

As is stated at the beginning of this report, remarks on the stratigraphy of the eros in which the Mt. Burr bore is situated, will be brief.

Limestones similar to those referred to be Werrikooian Stage, in the Mt. Burr bore from 19 feet down to 448 feet, outcrop in several localities in southwestern Victoria and in parts of couthesstern South Australia. They are recorded from bores at Kingston, Bouth Australia, and in some of the numerous bores drilled in the perish of Dartmoor in Victoria.

Apparently a disconformity exists at 148 feet, where the beds underlying the Upper Pliocene (Werrikooian) are Middle Miocene in age. Water was struck at this depth.

Bods referred to the Janjukian Stage, which occurs in the Mt. Burr bore from 148 fe t down to 425 feet, are also found in bores and outcrops in southeastern South Australia and southwestern Victoria. In this area the deposits consist of bryoscal limestone, whereas in southern central and eastern Victoria, they are represented by fossiliferous marl.

Victorialla placta is recorded from a bryoscal limestone at Forguson's Farm 5 miles from Mt. Gambier on the Konorong road, and Aspidostome airansis from a similar rock in a quarry 1 mile from Corpenter's Rocks, near Sullocks' Head well near Mt. Gambier. In No.1 Bore, Knight's Dome, Mt. Gambier, drilled during 1931-1932, Y. plecte was first met with at 40 feet and A. airansis at 12 feet. In Mt Burr bore, both forms were first recorded at 250-300 feet. In Knight's Dome bore, the Janjukian limestone continued down to 67 feet, where a non-compacted feesiliferous grit occurred, below which the bore passed into fine lighitiferous sandstone.

As regards the occurrence of the flinty rock in the erea; indications are that its stratigraphical position is at the top of the Janjukian.

# Distribution of Fossils in the various Samples

All determinable fossil species are listed below. As samples from further bores in the area are examined, further species can be added to the table so that in due course a fairly comprehensive list of species will be recorded.

For convenience the columns have been numbered from 1 to 6. NO.1 refers to 19- 148 feet, No. 2 to 205-250 feet, No. 3 to 250 - 300 feet, No. 4 to 300-350 feet, No.5 to 400-417 feet and No. 6 to 417-425 feet.

The letters indicate the following: r= rare, f= few, O\* common .

## PORAMINIFERA

|  | 2_             | The same       | 1    | 5    | 6     |
|--|----------------|----------------|------|------|-------|
| Sigmoidella elegantissima (d'orb.)     | Z <sup>r</sup> | 27             | 25   | ***  | -     |
| Cibicides ungerianus (d'Orb.)          | 1601           | 10 m           | No.  | 1    | 2     |
| C.refulgens (Montf.)                   | -              | -              | mar. | 107  | ***   |
| Discorbis dimidiate (F. &J.)           | -              | 100            | ***  | 1000 | ***   |
| D. australia Parr                      | 1790           | 2006           | 1001 | ***  | **    |
| D. turbo (d'orb.)                      | -              | -              | -000 | 100  | 1006  |
| D. collinsi Parr                       | name:          | -              | -    | 100  | ***   |
| Streblus beccarii (Lione)              | NA.            | ***            | ***  | 200  | 80    |
| Blohidium crispum (Linne)              | ***            | -              | ***  | 469  | 1886  |
| Ammospheeroidine spheeroidiniforme     |                |                |      |      |       |
| (Brady)                                | 23             | -              | -    | ***  | 366   |
| Dorothia sp                            | 23             | -              | -    | 1995 | ***   |
| Gaudryine rugosa d'Orb                 | 74             | minus          | ***  | -    | 35    |
| G. (Pseudogaudryina) Crespinae Cushman | 23             | Z <sup>3</sup> | ***  | nes  | 4     |
| Textularia carinata d'Orb              | £              | 1666           | -    | min  | 6     |
| T. sagittala Defr                      | 29             | -              | -    | 100  | ***   |
| Buliminella apiculata (Chapman)        | 72             | 98             | -    | -    | New Y |
| Cassidulina sebglobosa Brady           | o              | -              | f    | -    | f     |

|  | 4  | 0                             | -              | 1.               | pe  |              |
|--|--|-------------------------------|----------------|------------------|---|--------------|
| C. laevigata d'Orb                         | -  | and the same                  |                | -                | 7   | -            |
| Trifaring brody: Onchman                   | Labor 1  | 17                            |                | 100              | *   | nda<br>ma    |
| Globigerina bulloides d'Orb                | 7800   | 40                            | Yes            | -                |   | 44           |
| Globigerinoides trilobus (d'Orb.)          | reposit  | 2                             | -              | 346              | 23  | 24           |
| Pullenia quinqueloba ( Reuss)              |  | gra.                          | ***            | 1994             | 200   | -            |
| Pullenia quinqueloba (Reuss)               |  | £                             | 2              | 12               | -   | ine.         |
| U.BD                                       | ***  | 72                            | nue.           | 2                | 100   | 27           |
| Discorbis balcombensie Chap.m Parr. & Coll | 164  | 17                            | ***            | . 1900           | -   | 28           |
| D. bertheloti (d'orb.)                     | ***  | $\underline{\mathcal{L}}^{2}$ | 23             | -                | 90  | £            |
| Anomaline nonioinoides Perr                | MIN  | 27                            | ***            | ***              | 24  | 27           |
| A.glabrata Gushman                         | - make   | £                             | 22             | ľ                | -   |              |
| Carpenteria rotalifor is Chap. & Cresp     | See  | r                             |                | No.              | -   | T,           |
| Gyroldina soldenii (d'orb.)                | the state of the s | ľ                             | 20             | 7                | -   | -73          |
| Eponides repandus (F. &. M.)               |  | 2                             | * 24 44        | 1                |   | 2 2          |
| E. concentrious (P.A.J.)                   |  | 49                            | 40             | 400              | T.  | I.           |
| E. scabriculus (Chapman)                   | No.  | 329                           | da<br>da       | 0                | -   | 0            |
| Elphidium craseatum Cushmen                | este .   | 22                            | Ag.            | 77               | #U#   | £            |
| Dorothia parri Gushman                     | -  | -                             | 72 .           | M.               | 778   | AND STATES   |
| Lagena orbignyana Sez                      | MIN.   | -                             | 23             | ***              | E.  | ***          |
| L. marginata (W.A.B.)                      | me   | -                             | 28             | No.              |   | -            |
| Dentalina fissicostata (Gumbel)            | and:   | ener.                         | 79             | -                | ***   | me           |
| Lenticulina gibba (d'Orb.)                 | and.   | 400                           | 7.             | -                | Sec.  | **           |
| Lirotulata (Lem.)                          | -  | **                            | $\Sigma^{i}$   | ree              | -   | **           |
| Globulina gibba (d'orb.)                   | ese.   | Nen.                          | T.             | -                | ***   | 100          |
| Guttulina problema ( d'Orb. )              | -  | 300                           | 27             | 7.2              | ***   | 2            |
| G. lactea ( Wd.J.)                         | ***  | -                             | $\mathbb{I}_4$ | 1966             | New York  | ***          |
| Sigmomorphina chepmeni (H.A.& S.)          | 1000   | Ain                           | 27             | ***              | 1000  | ***          |
| S.cf. vaughani Cush. & Ozawa               | 200  | 2600                          | I'             | -                | design and | 2000         |
| Victoriella plecte (Chapmen)               | 1000   | -                             | C              | T.               | -   | 27           |
| Horkerine semiornate (Howchin)             |  | _                             | ľ              | -                |   | 2.           |
| Planulinoides biconcavus (P. & J.)         | **   | -                             | r              | -                | nuc.  | -            |
| Patellina corrugate Willm                  | -  | 1004                          | 2              | -                | 160   | 4            |
| Anomalina emmonoides Reuss                 | rato.  | 2000                          | 27             | -                | **  | 2            |
| Gaudryina (Siphogaudryina) of victor-      |  |                               |                |                  |   |              |
| iana Gushman                               | **   | **                            | See            | 13               | ***   | -            |
| Veracuilina triquetra (Munst.)             | -  | -                             | -              | 27               | -   | ***          |
| Bolivina robusta Brady                     | NIR  | -                             | 500            | $\mathbf{I}_{3}$ | 5500  | -            |
| Guttulina irregularis (d'Orb.)             | Mil  | des.                          |                | 27               | -   | 24           |
| Reronallenie wilsoni (R.A.&B.)             | DATE:  | 246                           | **             | r                | Z,  | r            |
| Pelvinulinella tenuimergineta Chapm.       | -  | 1400                          | -              | - 14             |   | 49           |
| ? Cibicides sorrentae Chapm. Parr & Coll   | -  | _                             | -              | 24<br>Z4         | _   | T,           |
| Discorbis orbicularis (Terg.)              | -  | MIN                           |                | 72               | -   | -            |
| Eponides sp. nov                           | No.  | mor                           | -              | 40               |   | -            |
| Elphidium crassa um Cush. spinose var      | 446  | -                             | -              | 20               | ***   | MARKET .     |
| Spirillina inacqualis Brady                | Sec.   | -                             | -              | ***              | L   | - 100<br>Mar |
| Elphidium crespinae Cushman                | New  | -                             | -              | **               | 2*  | 27           |
| Lenticulina cropidula (F&. M.)             | may .  | past .                        | -              | ***              | No.   | $T_{s}$      |
| L. articulata (Reuss)                      | ese.   | -                             | ***            | Jese             | - delt  | $\Sigma_{a}$ |
| cf. Uvigorinella                           | nue.   | -                             | ***            | -                | 96  | 27           |
| Grespinella unbonifera (Parr)              | ***  | -                             | 1000           | -                | Section   | Z2           |
| Gypsina globulus Rouas                     | -  | -                             | -              | -                | -   | *            |
| Pullenia bulloides Oghmen                  | - Cheek  | SAME.                         | -              | -                | 1646  | T.           |
| PARAMETER S                                |  |                               |                |                  |   |              |
| Tretocalia Sp                              |  | 72                            |                |                  | -   | -            |
| Backmonella australis Hinde                |  | *                             |                | r                | r   | _            |
| Ecionema newberyi (McCoy)                  |  | _                             | _              | 4                | -   | f            |
| Feronemy Memberar (Medol)                  |  |                               |                | ala.             |   | -            |
| ANTHO ZOA                                  |  |                               |                |                  |   |              |
|  |  |                               |                |                  |   |              |
| Mopsea tenisoni Chapman                    | _  | _                             |                | f                | f   |              |
|  |  |                               | -              | -                | 7   | -            |

DAYOZOA Menines inocus latera \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Colloria fiatologo ontera ........... G. robusts Aleplestons \*\*\*\*\*\*\*\*\*\*\*\*\*\*\* er e C. rigido 400. vor. nerosple metera ...... 2 2 2 Celloria lettoelle Maplestons ........ 2 2 Milionidra pyriformia Cons & Desgler ...... Oribriline rediete (Moll.) .......... G. corners Ecc. ............. Porella tuberosa Canu & Escaler \*\*\*\*\*\*\*\*\* \*\* 1/3 Prostomeria gibbericollis MoG....... \* ma (\*) Viceluleria gigantes dema & Desoler ...... . MM 25 27 30 Omologia elongata Canu & Bessler ..... --\*\*\* 25 Membrajora conceperate latera ...... -45 Chaperia cylindrifor ea (Waters) \*\*\*\*\*\*\* \*\* \*\* 2 Crespedotus elongetus Cens & Bessler ...... \*
Huorodella 2longetus Cens & Bessler ...... \* 12 -000 ack. 404 1<sup>15</sup> 28 Polmicellerie megne Cenud Beseler ..... -- -- Prigonopore Vermicularia Melpestone ..... -- --27 ··· esse 153 Aspidostora sirensis Meplestone ..... -100 g 000 d/s 1000 . 2 -2 2 Idoponea Milneena d'Orb. ..... ... ... ... \*\* £ m 2 \*\* £ -200 Is bifrone actors \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 100 La somispiralio MoG. .............. 劉 1 100 170 Pilioparas oraneiossis Stol. \*\*\*\*\*\*\*\*\*\* \*\* - 65 Se. Hornera tenuis NoG. ............ Max 12 MAX max 25 27 17 100 alt. 25 Teotioaves school erecols 800. ..... -20 27 960 Acenthodesia claplex (Ecc.) ...... -- --23 Sin Grateroper pathla (Maters) ....... \* Perculina Cons & Mangler ...... \*\* 8 野 27 Adeonollopeis oblique (McO.) ..... \*\* Sulbipors proclats Mode \*\*\*\*\*\*\*\*\*\*\*\*\*\* Cribrilina crassicollis Cans & Bessler: .... \* 100 Didymosella larvalia Mod. \*\*\*\*\*\*\*\*\*\*\*\* \*\* Hornore taberouleta Mod. ....... ... ... ... - 10 Costenia producta (McC.) ...... \* Schizoporella orbiculifera Canu & Dess. .... \* commit 23 100 Spiropora verticillata ( Galdf.) \*\*..... r r

| DRACHIOPODA  |       |     |           |      |      |      |  |
|--|-------|-----|-----------|------|------|------|--|
| en trades de de la compania  | 4     | 2   | 72        | 24   | 爲    | 6    |  |
| Murravia catinuliformia ( Tate )   | -     | 25  | 166       | hom  | 406  | 104  |  |
| Cryptopora soutirostra (Chapman)   | 1966  | 800 | 17        | N/A  | 46   | 486  |  |
| ofe Mogo Doyplo Operators enteres established  | 498   | 49  | 9/d<br>24 | OSM- | 400  | 1660 |  |
| OSTRACODA  |       |     |           |      |      |      |  |
| A CONTRACTOR OF THE CONTRACTOR |       |     |           |      |      |      |  |
| Bythocyprie turofecta Chappan **********   | 9600  | 25  | 9000      | 466  | 450  | 400  |  |
| Cytheropteron batesfordense Chapcas  | 206   | -   | 400       | -    | 654  | 25   |  |
| Lozoconcha austrelia O.O.B. ************   | Arrie | 600 | 68        | -    | 4800 | 23   |  |
| Cythorolla spenov *****************  | 550   | -   | rest.     | 466  | 168  | 25   |  |
|  |       |     |           |      |      |      |  |

# Note on two salples from Mt. Mary Mell. 200 yerds from the No. 1882 1980

Sample 1. "Seady volcanic ash from AS feet to correlated with the sample from 93-101 feet to the bore.

Sample 2. "Limestone with exercionalis" faus 67 feet.
This emple is similar to that as 10%-100 feet in the bore.
The formulater Discording dimidists is recognised but the
pelecypod resains are too poorly preserved for determination.

Both opecimens belong to the Berrikopien Stage.

9. Caspin

CAMBURRA, A.C.T. 19th December, 1945. Marsonselth riscospletes