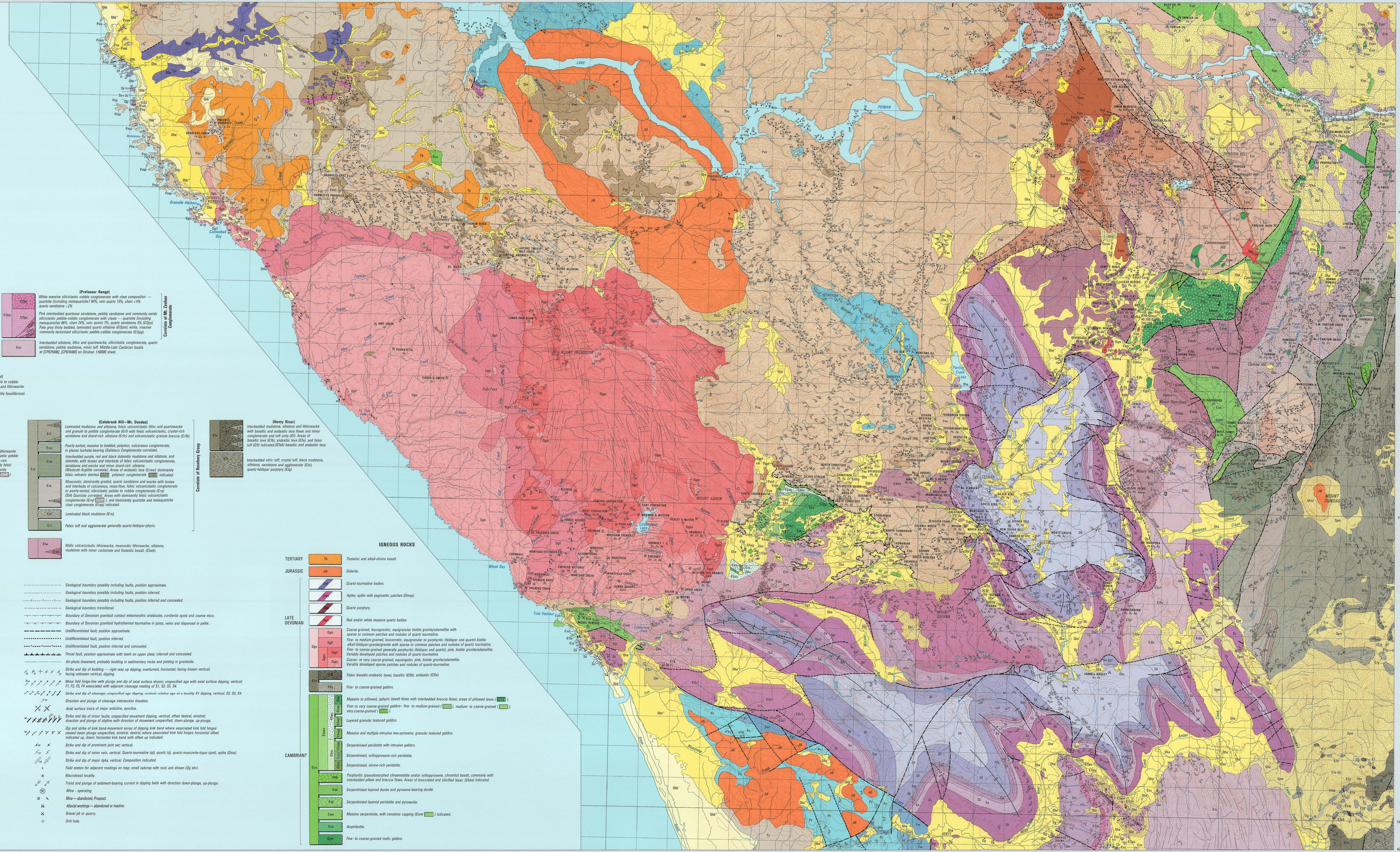
GEOLOGICAL SURVEY OF TASMANIA — DEPARTMENT OF MINES — HOBART

ZEEHAN

SCALE 1 : 50 000 (1 0 1 2 3 4 5 6 KILOMETRES)

GEOLOGICAL ATLAS 1 : 50 000 SERIES — SHEET 7914S FIRST REMAPPED EDITION 1994



CAINOZOIC

QUATERNARY (Qu)

HOLOCENE

- Qha — Alluvium (some gravel deposits indicated Qha'), eluvium (Qha") and marsh deposits.
- Qhb — Beach deposits (Qhb'), dune and blown sand (Qhb").
- Qht — Talus with clasts of dominantly silicified conglomerate (Qhtc), dolerite (Qhtd) and dominantly quartz porphyry (Qhtq).
- Qhr — Raised beach deposits.

PLEISTOCENE

- Qpf — Fluviglacial and lacustrine deposits, with associated lag of silicified conglomerate shown (Qpf').
- Qpm — Moraine and associated deposits.

Erosional surface

TERTIARY (Tu, Ts)

- Tb, Tc, Tf, Tsb, Tl — Sand, silt and clay (Ts) with impersistent horizons of basalt (Tb); conglomerate, gravel and grit (Tc); ferricrete and associated deposits (Tf); sand and clay with basalt boulders (Tsb); limestone (Tl).

Unconformity

PERMIAN (Pu) — Parmeener Supergroup

- Pc — Freshwater quartz sandstone with minor mudstone, coal partings and other carbonaceous material. Soft sediment structures common (correlate of Cygnet Coal Measures). (Upper)
- Pf — Dark grey, poorly sorted, often bioturbated but essentially unfossiliferous siltstone and minor sandstone. (Lymingtonian; Lower)
- Pw — Poorly sorted, fossiliferous, pebbly and conglomeratic sandstone. (Lymingtonian; Lower)

CARB.?

- Pt — Tillite and associated glacigene rocks (correlate of Wynyard Tillite). (Tamarian, Hellyerian)

Unconformity

DEVONIAN / SILURIAN (SDu) — Eldon Group

- Db (Du) — Grey or greenish grey interbedded laminated mudstone, siltstone and minor fine-grained quartz sandstone (Bell Shale).
- Df (Du) — Generally pale grey, fine-grained quartz sandstone with subordinate interbedded greenish grey siltstone (Florence Quartzite). Abundantly fossiliferous in part.
- Sac (Su) — Greenish grey and bluish grey laminated siltstone and minor interbedded fine-grained quartz sandstone (Austral Creek Siltstone).
- Sk (Su) — Pale grey to white generally fine-grained quartz sandstone (Keel Quartzite).
- Sa (Su) — Greenish grey, generally highly fissile siltstone and mudstone with minor interbedded fine-grained quartz sandstone (Amber Slate).
- Sc (Su) — Generally pale grey and in part pink, commonly current-bedded, fine- to coarse-grained quartz sandstone with common pebble conglomerate layers, and with minor interbedded pale green mudstone and siltstone (Crotty Quartzite).

PALAEOZOIC

ORDOVICIAN (€Ou)

- Og — Dark grey carbonate rocks, calcareous mudstone, minor quartz sandstone and black clay weathering products. In part fossiliferous (correlate of Gordon Limestone).
- Om — Pale grey to pink commonly cross-bedded quartz sandstone, coarse and pebbly toward base and with tubicular trace fossils in horizons of upper sequences (correlate of Moina Sandstone).
- €Oz — **[Mt. Zeehan]** Purplish massive to well-bedded, siliciclastic, mostly cobble– boulder conglomerate with minor interbedded sandstone, siltstone and red mudstone (Mt Zeehan Conglomerate). Conglomerate clasts — ferruginous quartz sandstone 62%, quartzite 27%, vein quartz 11%, chert 2%.

[Duck Creek]

- €Od — Comparatively thin sequence of white dominantly quartz pebble conglomerate, coarse quartz sandstone and minor shale (correlate of Mt Zeehan Conglomerate and Moina Sandstone). (Pou)

[Professor Range] — Correlate of Mt. Zeehan Conglomerate

- €Opc (€Opu) — White massive siliciclastic cobble conglomerate with clast composition — quartzite (including metaquartzite) 84%, vein quartz 13%, chert <4% quartz sandstone <2%
- €Ops, €Opm, €Opg (€Opu) — Pink interbedded quartzose sandstone, pebbly sandstone and commonly sandy siliciclastic pebble-cobble conglomerate with clasts — quartzite (including metaquartzite) 66%, chert 24%, vein quartz 7%, quartz sandstone 3% (€Ops). Pale grey thinly bedded, laminated quartz siltstone (€Opm); white, massive commonly tectonised siliciclastic pebble-cobble conglomerate (€Opg).
- €nc — Interbedded siltstone, lithic and quartzwacke, siliciclastic conglomerate, quartz sandstone, pebbly mudstone, minor tuff. Middle-Late Cambrian fossils at [CP675486], [CP676480] on Strahan 1:50000 sheet.

CAMBRIAN

LATE?

- €tq — Interbedded, laminated purple-green siltstone and minor quartzwacke. Fossiliferous in part [CP582575].

MIDDLE? (€tu)

- €tc — Bedded black and grey chert-rich granule to pebble conglomerate.
- €ts — Laminated siltstone and lithicwacke.

[Dunkley Tram—Cuni Valley area]

- €tl, €tfv — Interbedded volcaniclastic lithicwacke, siltstone and vitric-lithic tuff (€tl) with minor felsic volcanic rocks (€tfv) containing shards.

[Black Hill—Misery Hill] — MIDDLE CAMBRIAN — Dundas Group (€du)

- €dlq (€dlu) — Interbedded white quartz sandstone and green siltstone.
- €dlm (€dlu) — Interbedded pebble to boulder conglomerate, pebbly sandstone, sandstone and lithicwacke (Misery conglomerate).
- €dl (€dlu) — Laminated green and purple siltstone and mudstone with greyish-green sandstone and lithicwacke (Climie Formation).
- €dlc, €dls (€dlu) — Interbedded and lensoidal granule to boulder conglomerate, lithicwacke, sandstone and siltstone (€dlc); thinly bedded and laminated siltstone and mudstone with minor sandstone (€dls).
- €dlb (€dlu) — Interbedded purple, red and green siltstone, in places calcareous, sandstone and lithicwacke with lenses and interbeds of felsic volcaniclastic granule conglomerate, sandstone and wacke. Areas with dominantly felsic volcanic detritus indicated ( ).
- €dmb (€dmu) — Laminated grey to greyish green siltstone and sandstone with minor granule conglomerate and lenses of felsic volcaniclastic sandstone. Areas with dominantly conglomerate indicated (€dmbc).
- €dmra (€dmu) — Interbedded, poorly-sorted, chert-rich, conglomerate, pebbly sandstone and sandstone with lenses and interbeds of felsic volcanic detritus (Razorback Conglomerate). Areas with dominantly felsic volcanic detritus indicated ( ).
- €dmh (€dmu) — Laminated siltstone and mudstone with minor sandstone (Hodge Formation).
- €dmre (€dmu) — Poorly-sorted, volcaniclastic (in places mafic, in other places felsic), polymict conglomerate (Red Lead Conglomerate).
- €dj, €ba, €su — Interbedded, laminated siltstone and mudstone, sandstone and granule conglomerate with minor pebbly lithicwacke and cobble conglomerate (€dj); associated igneous rocks (€ba, €bsu, €su).

[Huskisson River—Ring River] — Dundas Group (€hu)

- €hlc — Siliceous, open and closed framework, pebble to cobble conglomerate, pebbly sandstone, sandstone and lithicwacke.
- €hlm — Laminated black mudstone and siltstone (highly fossiliferous).
- €hm — Laminated siltstone, graded sandstone and lithicwacke with interbeds and lenses of felsic volcaniclastic pebble conglomerate and pebbly sandstone, crystal-rich sandstone and wacke. Areas with dominantly felsic detritus indicated ( ). Areas of dominantly non-volcaniclastic conglomerate indicated ( ).

[Colebrook Hill—Mt. Dundas] — Correlate of Rosebery Group (€ru)

- €rl, €rfc, €rfb — Laminated mudstone and siltstone, felsic volcaniclastic lithic and quartzwacke and granule to pebble conglomerate (€rf) with felsic volcaniclastic, crystal-rich sandstone and shard-rich siltstone (€rfc) and volcaniclastic granule breccia (€rfb).
- €rcc — Poorly-sorted, massive to bedded, polymict, calcareous conglomerate, in places fuchsite-bearing (Salisbury Conglomerate correlate).
- €rw — Interbedded purple, red and black dolomitic mudstone and siltstone, and dolomite, with lenses and interbeds of felsic volcaniclastic conglomerate, sandstone and wacke and minor shard-rich siltstone. (Westcott Argillite correlate). Areas of andesitic lava (€rwv); dominantly felsic volcanic detritus polymict conglomerate indicated.
- €rq, €rqq — Muscovitic, dominantly graded, quartz sandstone and wacke with lenses and interbeds of calcareous, mass-flow, felsic volcaniclastic conglomerate or poorly-sorted, siliciclastic pebble to cobble conglomerate (€rq) (Stitt Quartzite correlate). Areas with dominantly felsic volcaniclastic conglomerate (€rqf), and dominantly quartzite and metaquartzite clast conglomerate (€rqq) indicated.
- €rs — Laminated black mudstone (€rs).
- €rt — Felsic tuff and agglomerate generally quartz-feldspar-phyric.

[Henty River] — Correlate of Rosebery Group (€fu)

- €f, €fb, €fa — Interbedded mudstone, siltstone and lithicwacke with basaltic and andesitic lava flows and minor conglomerate and tuff units (€f). Areas of basaltic lava (€fb), andesitic lava (€fa), and felsic tuff (€ft) indicated. (€fab) basaltic and andesitic lava.
- €lx, €lq — Interbedded vitric tuff, crystal tuff, black mudstone, siltstone, sandstone and agglomerate (€lx); quartz-feldspar porphyry (€lq).

- €lw, €lwb — Mafic volcaniclastic lithicwacke, muscovitic lithicwacke, siltstone, mudstone with minor carbonate and tholeiitic basalt. (€lwb).

PROTEROZOIC

EOCAMBRIAN (Escu) — Success Creek Group

- Ecc — Dominantly mafic volcaniclastic lithicwacke and siltstone and carbonate beds, with tholeiitic basalt (Eccb) and felsic mafic lithicwacke intercalcations (Eccf) indicated. (Crimson Creek Formation).
- Esru (Esr) — Dominantly laminated grey siliceous siltstone (Esru) with red to purple hematitic siltstone (Esruh) interbedded with red chert and silicified red chert conglomerate (Esruc); dolomite horizons (Esrud) white well-sorted quartz sandstone beds (Esrus); pink wellsorted quartz sandstone beds (Esrup); felsic–mafic volcaniclastic lithicwacke and siltstone (Esruv); possible stratigraphic horizons of sheared carbonaceous siltstone, with phacoids of broken sandstone beds (Esrui) forming tectonic intrusion into Esru and Esd.
- Esd — Dominantly quartz sandstone with laminated grey siltstone and mudstone, and local pebbly sandstone and conglomerate; felsic-mafic volcaniclastic lithicwacke and siltstone intercalations (Esf), basal sequence with carbonate beds, thin tuffaceous horizons and conglomerate beds.

Unconformity

PRECAMBRIAN (Pou) — Oonah Formation

- Poq — Variable schistose quartzite and siliceous siltstone (Poq); calcareous quartzite (Poqc); minor carbonate with calcareous quartzite and mafic schist (Poqm).
- Pos — Pale weathering siltstone and shale (Pos) with black pyritic carbonaceous shale (Posb).
- Pov — Mafic vesiculate lavas.
- Pouf — Iron stone derived from mineralised (magnetite) carbonate within Pou.

[Dundas]

- Pco, Pct, Pcs — Quartzwacke with siliceous siltstone and pelite (K-Ar date 684 ± 10 Ma), (correlate of Oonah Formation), showing metamorphic transition (Pct) into fine quartz-mica ± chlorite schist (Pcs).

IGNEOUS ROCKS

TERTIARY

- Tb — Tholeiitic and alkali-olivine basalt.

JURASSIC

- Jdl — Dolerite.

LATE DEVONIAN

- Dqt — Quartz-tourmaline bodies.
- Dma — Aplite; aplite with pegmatitic patches (Dmap).
- Dqp — Quartz porphyry.
- Dqm — Red and/or white massive quartz bodies.
- Dglc (Dgu) — Coarse-grained, leucogranitic, equigranular biotite granite/adamellite with sparse to common patches and nodules of quartz tourmaline.
- Dglf (Dgu) — Fine- to medium-grained, leucocratic, equigranular to porphyritic (feldspar and quartz) biotite alkali-feldspar-granite/granite with sparse to common patches and nodules of quartz tourmaline.
- Dgpf (Dgpu) — Fine- to coarse-grained generally porphyritic (feldspar and quartz), pink, biotite granite/adamellite. Variably developed patches and nodules of quartz-tourmaline.
- Dgpc (Dgpu) — Coarse- to very coarse-grained, equiangular, pink, biotite granite/adamellite. Variably developed sparse patches and nodules of quartz-tourmaline.

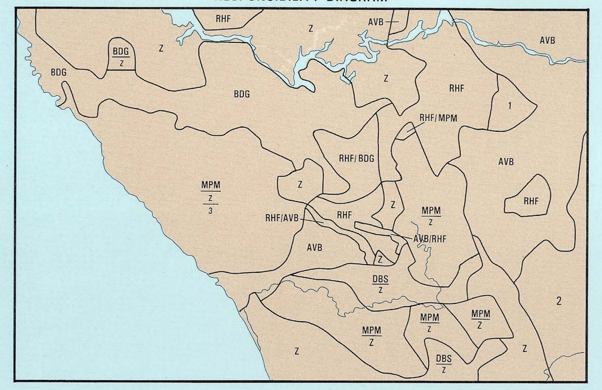
CAMBRIAN?

- €fl (€fu) — Felsic basaltic-andesitic lavas; basaltic (€flb), andesitic (€fla).
- €fg (€fu) — Fine- to coarse-grained gabbro.
- €ba (€basu, €su) — Massive to pillowed, aphyric basalt flows with interbedded breccia flows; areas of pillowed lavas ( ).
- €bagf (€bau) — Fine- to very coarse-grained gabbro:- fine- to medium-grained ( ), medium- to coarse-grained ( ), very coarse-grained ( ).
- €bagl — Layered granular textured gabbro.
- €bagg — Massive and multiple-intrusive two-pyroxene, granular textured gabbro.
- €bspi (€bsu) — Serpentinised peridotite with intrusive gabbro.
- €bspo — Serpentinised, orthopyroxene-rich peridotite.
- €bso — Serpentinised, olivine-rich peridotite.
- €bb — Porphyritic (pseudomorphed clinoenstatite and/or orthopyroxene, chromite) basalt, commonly with interbedded pillow and breccia flows. Areas of brecciated and silicified lavas (€bbs) indicated.
- €sd — Serpentinised layered dunite and pyroxene-bearing dunite.
- €sp — Serpentinised layered peridotite and pyroxenite.
- €sm — Massive serpentinite, with ironstone capping (€smt) indicated.
- €sa — Amphibolite.
- €gm — Fine- to coarse-grained mafic gabbro.

SYMBOLS

- Geological boundary possibly including faults, position approximate.
- Geological boundary possibly including faults, position inferred.
- Geological boundary possibly including faults, position inferred and concealed.
- Geological boundary transitional.
- Boundary of Devonian granitoid contact metamorphic andalusite, cordierite spots and coarse mica.
- Boundary of Devonian granitoid hydrothermal tourmaline in joints, veins and dispersed in pelite.
- Undifferentiated fault, position approximate.
- Undifferentiated fault, position inferred.
- Undifferentiated fault, position inferred and concealed.
- Thrust fault, position approximate with teeth on upper plate; inferred and concealed.
- Air-photo lineament, probably bedding in sedimentary rocks and jointing in granitoids.
- Strike and dip of bedding — right way up dipping, overturned, horizontal; facing known vertical; facing unknown vertical, dipping.
- Minor fold hinge-line with plunge and dip of axial surface shown; unspecified age with axial surface dipping, vertical; F1, F2, F3, F4 associated with adjacent cleavage reading of S1, S2, S3, S4.
- Strike and dip of cleavage; unspecified age dipping, vertical; relative age at a locality S1 dipping, vertical, S2, S3, S4.
- Direction and plunge of cleavage intersection lineation.
- Axial surface trace of major anticline, syncline.
- Strike and dip of minor faults; unspecified movement dipping, vertical; offset dextral, sinistral; direction and plunge of slipline with direction of movement unspecified, down-plunge, up-plunge.
- Dip and strike of kink band-movement sense of dipping kink band where associated kink fold hinges viewed down plunge unspecified, sinistral, dextral; where associated kink fold hinges horizontal offset indicated up, down; horizontal kink band with offset up indicated.
- Strike and dip of prominent joint set; vertical.
- Strike and dip of minor vein, vertical. Quartz-tourmaline (qt), quartz (q), quartz-muscovite-topaz (qmt), aplite (Dma).
- Strike and dip of major dyke, vertical. Composition indicated.
- Field station for adjacent readings on map; small outcrop with rock unit shown (Og etc).
- Macrofossil locality.
- Trend and plunge of sediment-bearing current in dipping beds with direction down-plunge, up-plunge.
- Mine - operating
- Mine — abandoned, Prospect.
- Alluvial workings — abandoned or inactive.
- Gravel pit or quarry.
- Drill hole.

RESPONSIBILITY DIAGRAM



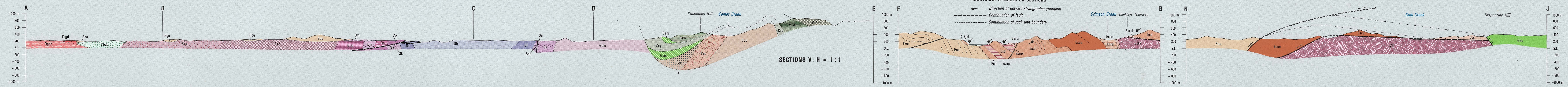
Geology by A.V. Brown, B.Sc.(Hons), Ph.D.; R.H. Findlay, B.A.(Hons), Ph.D.; B.D. Goscombe, B.Sc.(Hons), Ph.D.; M.P. McClenaghan, B.Sc.(Hons), Ph.D.; D.B. Seymour, B.Sc.(Hons), Ph.D.

With reference to Blissett, A.H. Gulline, A.B. 1962
One mile geological map series K/55-5-50 Zeehan.
Department of Mines, Tasmania.
Brown, A.V. 1986. Regional geology of the Dundas—Mt. Lindsay—Mt. Ramsay area.
Department of Mines, Tasmania.
Corbett, K.D. 1986. Mt. Read Volcanics Project 1 : 25 000 map series.
Map 3. Geology of the Henty River—Mt. Read area.
Department of Mines, Tasmania.
Jago, J.B.; Corbett, K.D. 1990. Latest Cambrian trilobites from Misery Hill, Western Tasmania. *Alcheringa* 14 : 233-246.
Renison Limited, 1991. Geology of Mine area. (Unpublished).

1. Geology compiled from information supplied by Renison Ltd. 1991
2. K.D. Corbett, 1986 Geology of the Henty River—Mt. Read Area: Map 3 Mt Read Volcanics Project.
3. The Heemskirk Granite Massif, Western Tasmania, Ph.D. Thesis University of Tasmania (unpubl.). J. Klominsky 1972
Z. Blissett & Gulline 1 : 63 360 series Zeehan map.

Construction material sites from Mineral Resources Tasmania data base CONMAT. Mine and prospect locations by G. R. Green and R. S. Bottrill and Mineral Resources Tasmania data base MIRLOCH with acknowledgement to D.J.F. Crossing — R.G.C. Exploration.

SECTIONS V : H = 1 : 1



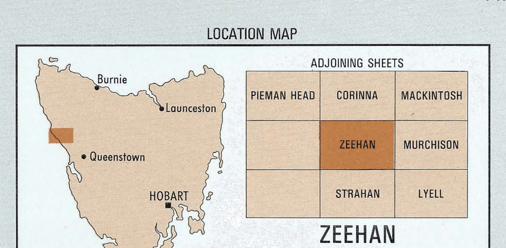
ADDITIONAL SYMBOLS ON SECTIONS

- Direction of upward stratigraphic younging.
- Continuation of fault.
- Continuation of rock unit boundary.

Base map redrawn from 1 : 25 000 machine plots produced by the Department of Environment and Planning, Hobart.
Geological map production by the Cartographic Branch of the Geological Survey, Department of Mines, Hobart.
Cartography by J.H. Clarke, P.B. Nankivell.
Supervising Geologist in charge of Regional Mapping E. Williams, B.Sc.(Hons), Ph.D., F.G.S.
Compiled under the direction of Director of Mines
Issued under the authority of the Minister for Mines.
Published 1994

CROWN COPYRIGHT RESERVED

LOCATION MAP



ZEEHAN
SHEET 7914S (50)