

Geology of the Huon District

By

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(WITH 3 MAPS)

ABSTRACT

The area around Huonville and Glen Huon consists of Permo-Triassic sediments intruded by Jurassic dolerite. Widespread faulting which accompanied the intrusion has controlled the main structures within the area. Fluvial Tertiary and Quaternary deposits cover the broad valley floors. Those of Tertiary age are associated with basalt.

INTRODUCTION

The area dealt with lies within the Huon Municipality of the Southern Region of Tasmania. It is bounded on the east and west by the grid lines 500,000 yards E. and 480,000 yards E., on the north by the grid line 710,000 yards N. and on the south by the grid lines 697,000 yards N. (western half) and 700,000 yards N. (eastern half), on sheet 6 of the four-mile State map of Tasmania.

Use was made of aerial photographs for the construction of the base maps, and for field mapping. A controlled slotted templet layout was used in the former case, and direct tracing on to ethulon over-lay sheets in the latter case. Two sheets of geological maps are published here and the author mapped part of the Franklin area published in 1954 (Ford, 1954).

I am indebted to the staff of the Geology Department of the University of Tasmania for help and advice. Special acknowledgments are due to Professor S. W. Carey who directed the field work, Mr. M. R. Banks for help in the identification of palaeontological specimens and Miss B. Scott for help in the identification of minerals.

PHYSIOGRAPHY

The area lies within that physiographic unit of Tasmania known as the Southern Highlands (Nye and Blake, 1938). However, extensive erosion by the Huon River system has left the area with two thirds of its surface at less than 1000 feet above sea level, and one third at less than 500 feet above sea level. It is thus in reality part of a region of lower land surface enclosed within the Southern Highlands. This region of lower land surface separates the Wellington block in the north-east from the Hartz block in the south-west. The topography is mature, the original surface having been entirely eroded away. The only peak above 2000 feet is Mount Misery (2279 feet), which is situated in the extreme central north of the area. There is a plateau standing between 1000 feet and

2000 feet in the south-western portion of the area which, like Mt. Misery and an elevated region of hilly and mountainous country between Huonville and Pelverata, gives way to less elevated surfaces. There less elevated surfaces, composed mainly of the broad valleys of the Huon and Mountain Rivers, stand at less than 500 feet and are covered in part by river terrace and more recent alluvial material.

During the Lower Tertiary, a peneplain developed in the Late Mesozoic (Hills and Carey, 1949), was subjected to widespread block faulting, which gave rise among other physiographic units to the Southern Highlands. It was this Tertiary faulting, or "Plateau Uplift" as Lewis (1945) called it, which initiated the present erosional cycle of the Huon River System. However although the present relief of this area was the result of this regional faulting throughout Tasmania, no definite Tertiary faults have been recognised within the area. The next stage was the deposition of fluvial material on the broad valley floors, and the later development of river terraces.

For its entire length within the area, the course of the Huon River lies in valley tract, but estuarine conditions prevail south of Huonville. There is some evidence that the straight portion of the Huon River west of Ranelagh has been controlled by a fault which parallels this section of the stream. Its course at Ranelagh has been changed to the south by a basalt flow, and at Ironstone Creek half a mile downstream from Huonville, dolerite has been responsible for a swing to the south-west. The dolerite is more resistant to erosion than the softer sedimentary rocks, and consequently has produced temporary irregularities in the stream profile in the higher reaches of the Huon River.

The tributaries of the Huon River are short and youthful, and are in mountain tract for the greater part of their length. Waterfalls and rapids are not uncommon.

The Mountain River south of Lucaston is in plains tract, where it has formed incised meanders in the fluvial deposits covering its broad valley floor. The headwaters of its tributaries, like those of the Huon River are in mountain tract. However they pass into valley and sometimes plains tract before joining the Mountain River.

In places, particularly along the Mountain River valley, the fluvial deposits can be recognised as constituting river terraces. Owing to recent erosion and cultivation, it is difficult to trace more than one terrace margin with any certainty. Aneroid measurements disclosed a uniform fall in the top of the terrace material of 250 feet from the northern boundary on the Mountain River to the southern boundary on the Huon River. The top levels of the terrace material on both Judds Creek and the Huon River at the western boundary of the area are approximately equal to the top level already mentioned for the Mountain River north of Grove.

On proceeding past the Grove turn-off towards Huonville, terraces can be seen on both sides of the road. They rise 20 feet above the plain located between Blackfish and Fourteen Turn Creeks. These two creeks are entrenched about 10 feet below the general level of this plain. Thus in this vicinity, the stream beds are 30 feet below the top of the terrace.

About a mile south of the junction of Blackfish Creek, the Mountain River stands at 90 feet below the terrace level, and is still entrenched about

10 feet below its present banks. The terrace level here is 80 feet below the level at Grove and 40 feet below the level shown on the Huon Highway to the east.

Just south of Huonville, terrace material is 80 feet above the Huon River, and at Franklin, 50 feet. West of Judbury on the Huon River, terrace material occurs up to 100 feet above the river.

Although they cannot be traced with certainty, other terrace levels exist within the area. This indicates that the relative uplift responsible for the terrace formation was not a single event. These terrace levels may be an expression of the fluctuating sea level caused by the Pleistocene glaciation.

The most recent relative uplift of 10-15 feet reported from other localities is shown by the entrenchment of the streams by about 10 feet.

STRATIGRAPHY

The following stratigraphic units are present:—

	Thickness in feet
QUATERNARY SYSTEM:	
Fluvatile gravels, &c.	
TERTIARY SYSTEM:	
Basalts	
Fluvatile gravels, &c.	
TRIASSIC SYSTEM:	
Feldspathic Sandstone	?
Knocklofty Sandstone and Shales	900+
PERMIAN SYSTEM:	
Cygnnet Coal Measures	?
Ferntree Mudstone	470-600
Woodbridge Glacial Formation	200+
Grange Mudstone	?

Permian System

The Permian rocks of the area are mainly confined to the Ferntree Mudstone and Woodbridge Glacial Formations. However, there are several occurrences of Grange Mudstone.

The base of this system is not exposed. The lowest Permian rocks are represented by the Grange and Woodbridge Mudstones where they outcrop above Cainozoic gravels.

This System is overlain by the Knocklofty Sandstone and Shale Formation which is well developed throughout the area.

Grange Mudstone

Because of the absence of the development of a basal conglomerate member of the Woodbridge Glacial Formation, it is not always possible to identify the Grange Mudstone.

Although in some cases lithological and palaeontological characters allow a distinction to be made, the Grange Mudstone does not constitute a mappable unit within the area and has not been shown on a map as a formation distinct from the Woodbridge Glacial Formation. However the localities where it was recognised are indicated. Mudstones stratigraphically equivalent to the Grange Mudstone elsewhere may be more widespread in extent than indicated.

A few feet of a very fossiliferous, partly calcareous, grey shaly mudstone is exposed in the river bank near the old wharf at Ranelagh. It is unconformably overlain by Tertiary fluviatile deposits, and to the south is faulted against Knocklofty Sandstone. Its direct relation to other Permian rocks is obscured, but from its position it appears to be the lowest horizon exposed within the area.

The fossils it contains are generally large and sturdy, and quite often the original carbonate material of their structure is still preserved. The main fossils are spiriferids, productids, bryozoans including *Fenestella* sp. and various species of aviculopectinids.

A soft, richly fossiliferous, massive, silty mudstone dominantly white in colour is exposed in a road cutting at 489500E—705250N, west of Ranelagh. The white colour gives way to yellow and orange in irregular patches, due in part to weathering. There are a few grains between 0.4 mm. and 0.8 mm. set in an even groundmass of smaller grains. The dominant mineral is quartz. The fossils include *Fenestella* sp., *Polypora* sp., spiriferids and a portion of an aviculopectenid.

This exposure is 390 feet stratigraphically below the top of the Woodbridge Formation, exposed to the west.

In another road cutting at 489770E—705870N, a soft, creamy yellow, fine grained, richly fossiliferous mudstone is exposed across a fault from the occurrence mentioned above. The fossils include *Fenestella* sp. and some pelecypods.

This mudstone horizon is 280 feet stratigraphically below the top of the Woodbridge Formation exposed up the hill to the north-east. It is overlain by silty and sandy mudstones associated with fine conglomerates 80 feet above the mudstone. Scattered fossils and quartzite erratics up to 5 cm. in diameter are present.

This fine conglomeratic material, not observed elsewhere, may be the stratigraphic equivalent of the basal conglomerate of the Woodbridge Formation. This is the only indication of the upper limit of the Grange Mudstone observed within the area.

Rock fragments resembling Grange Mudstone were found loose at Lucaston, and on the southern boundary of the area just east of the Huon River. These localities are adjacent to hills on which the Woodbridge Glacial Formation is exposed.

Woodbridge Glacial Formation

This formation which is at least 200 feet thick lies conformably between the Risdon Sandstone member of the Ferntree Mudstone above, and the Grange Mudstone below. The uncertain nature of the lower boundary has been discussed. The upper boundary is well defined throughout the area.

The lower beds of the Woodbridge Glacial Formation exposed in the area are composed of a white and grey silty mudstone containing glacial erratics up to 5 cm. in diameter, composed mainly of quartzite, although other material including black slate has been observed. Some of the erratics are in their second cycle of sedimentation. The Owen Conglomerate appears to have been one of the parent rock types. Bryozoan, brachiopod and mollusc fossils are present.

This silty mudstone is associated in part with a variable sandstone composed of angular quartz grains, which occurs about 100 feet stratigraphically below the top of the Woodbridge Glacial Formation. This sandstone is exposed on the southern boundary of the area just east of the Huon River, and in the section shown above locality 489770E—705870N, west of Ranelagh.

The top 100 feet of the Woodbridge Glacial Formation is very often composed of a mottled red, yellow and grey silty mudstone containing scattered marine fossils and fewer glacial erratics than lower beds. The fossils are mainly brachiopods including spiriferids and productids and molluscs including aviculopectinids. Bryozoans appear to be very sparse.

One specimen of massive silty mudstone from about 30 feet below the top of the Woodbridge Formation from locality 488930E—707400N, contains angular grains of quartz up to 3 mm., set in a matrix of grains less than 0.8 mm. The degree of sorting for the finer grains (less than 0.4 mm.) is poorer than for the Grange Mudstone. Also the grains in the 0.4-0.8 mm. range are more angular than the finer ones. With normal erosion and deposition by water this is not the case.

There are some aggregates up to 0.8 mm. which contain equidimensional quartz particles of about 0.07 mm. Fine micaceous material and a few grains of orthoclase are present. Silica is the dominant cement, but some limonitic cement is present.

Ferntree Mudstone

This formation lies between the Woodbridge Glacial Formation below and the Knocklofty Sandstone and Shale Formation above.

The basal member of this formation is the Risdon Sandstone, a 20 feet thick marker horizon of great value in field mapping. It is a very variable member showing all gradations from a conglomerate with quartz pebbles up to 3 cm. in diameter set in a matrix of angular quartz and feldspar, to a sandstone with feldspar. The finer phases which, in certain instances resemble Triassic Sandstone, are composed mainly of grains between 0.5 mm. and 1 mm. The cement is of both ferruginous and siliceous types and fine micaceous material, interstitial quartz, and some plagioclase are present. In the coarser phases some of the quartz grains are blue-grey in colour and others show a secondary growth of silica around their margins. The larger particles in the coarser phases are sub-rounded to angular. At locality 490040E—706080N, west of Ranelagh, the coarser phases show a lower percentage of matrix, and the finer phases are cross-bedded.

Overlying the Risdon Sandstone is an unfossiliferous hard grey and white mottled mudstone with interbedded black shaly bands up to several feet thick. Glacial erratics occur scattered throughout, but are more abundant towards the base. However, they are not nearly as plentiful as in the Woodbridge Glacial Formation and are usually less than 3 cm. in diameter.

Although most of this formation is composed of a mudstone with small glacial erratics, there are siltstone phases which resemble some of the unfossiliferous parts of the Woodbridge Glacial Formation. A specimen of typical mudstone from near the top of the formation showed

the grains to be predominantly about 0.08 mm. in size with a few scattered ones up to 0.8 mm. The grainsize is more even than in the Woodbridge Mudstones. The cement is mainly siliceous and there are a few scattered feldspar grains. The stratigraphic thickness of the Ferntree Mudstone has been measured near Judbury where it is 470 feet, between Judbury and Ranelagh where it is 500 feet, and north of Ranelagh where it is not more than 600 feet. In the north-west of the area there are 555 feet exposed above fluviatile deposits, but the Risdon Sandstone is not exposed.

Black shaly bands are shown alternating with a massive, hard grey-white mudstone for 20 feet, at a point 120 feet above the base of the Ferntree Mudstone in a cliff face at locality 491550E—707560N, north of Ranelagh. These black shaly bands are often found in the Ferntree Mudstone where it is exposed at the margins of terraces underlying Cainozoic gravels along the valley of the Mountain River near Grove.

Cygnets Coal Measures

These beds are not exposed within the area. However, in the vicinity of locality 489500E—699000N, south-west of Huonville, carbonaceous shale is exposed below water-level in a flooded adit driven in Knocklofty Sandstone. Near the mouth of this adit there are fragments of carbonaceous shale on the dump of a shaft which has been filled in. This may indicate that the Knocklofty Sandstone in this vicinity overlies carbonaceous shale which is either part of the Ferntree Mudstone or is equivalent to the Cygnets Coal Measures. This Formation was not observed elsewhere within the area.

Triassic System

The Permian-Triassic boundary has not been observed to outcrop sufficiently clearly within the area to allow a close examination. However in adjacent areas to the south slight disconformity has been established (Hale, 1953).

The Triassic System is mainly represented by the Knocklofty Sandstone and Shale Formation. There are limited occurrences of Feldspathic Sandstone. Due to erosion and the intrusion of dolerite, the upper limits of this system cannot be seen within the area.

Knocklofty Sandstone and Shale

The basal member of this formation is a variable conglomerate composed mainly of sub-angular to sub-rounded quartz particles up to 1 cm. in diameter set in a matrix of sand grade quartz with some feldspar. The material of the matrix is sub-angular. Both siliceous and ferruginous cements are present, the former being dominant. There are not many feldspar grains larger than 2 mm. The weathered surfaces show no feldspar, which gives the rock the appearance of being entirely siliceous. With the removal of the feldspar by weathering, the rock tends to disintegrate causing deposits of sand to accumulate at the base of this formation. Both the larger pebbles and nodular structures associated with iron oxides stand out from the rock when it weathers.

The coarsest phase appears to be about 50 feet above the base. This basal member passes upwards into a light coloured, even grained sandstone (0.1 mm.-0.3 mm.) composed dominantly of sub-angular to sub-

rounded quartz fragments. The finer grains are more angular than the coarser ones. The feldspar found in the lower phases is almost completely absent from sandstone immediately overlying it.

Cross-bedding is found right through this overlying member and is present to a lesser extent in the top beds of the basal member. The general direction of deposition as indicated by cross-bedding is from the west.

The massive sandstones which overlie the basal member pass up into a member composed of interbedded sandstone and shale members. These shaly bands have been observed 80 feet stratigraphically above the base of the formation at locality 496900E—705900N, between Grove and Pelverata. These shales prove to be much less resistant to weathering than the interbedded sandstone, and as a result are often obscured. Thin shaly bands can be missed in a cliff face. However, differential weathering usually indicates the presence of shaly members.

Throughout the Knocklofty Formation there are developed curious slump structures which appear to be contemporaneous with sedimentation, or to have occurred soon after sedimentation but before complete consolidation took place. They are usually associated with cross-bedding and occur within the more massive sandstone members.

Clay pellet conglomerate horizons occur at various levels, but no stratigraphic value has been established for them. These clay pellets are up to 3 cm. in diameter and are set in an even grained sandstone matrix.

Mica with muscovite predominating, occurs throughout the formation, but is best developed within the shaly bands. Here it is often associated with graphite and dendrites. The mica and graphite are probably primary, the formation not having suffered conditions capable of producing these minerals in a secondary form.

Determinations on the sandstones from this formation show their heavy mineral content to be very low, the highest value obtained being 0.22 per cent. Minerals include ilmenite, haematite, limonite (as staining on quartz grains), tourmaline, zircon, topaz, rutile and garnet, which suggest acid igneous and metamorphic rocks as a source material for these sediments.

Grain size analyses, and the presence of cross-bedding indicate that these sediments have been reworked. However, there has not been much modification of the shape of the grains which suggests that this reworking and the distance of transport from the source has not been great. This is supported by the presence of primary mica.

There are 900 feet of this formation exposed south of Glen Huon. However, the top has not been observed so a total thickness cannot be given.

Feldspathic Sandstone

This rock type which conformably overlies the Knocklofty Sandstone and Shale Formation has only been observed at two localities within the area.

It is an even grained sandstone composed of quartz and feldspar grains (0.1-0.3 mm.) which vary in shape from well rounded to sub-angular. Ilmenite, zircon and topaz grains are present as heavy minerals.

At 499500E—702570N, north of Pelverata, Feldspathic Sandstone is exposed in a creek bank. It is associated with coal. The association of this coal with alluvial material suggests that the coal is not *in situ*.

The other occurrence of Feldspathic Sandstone is completely surrounded by dolerite which obscures its relationship to other sedimentary rock types.

Cenozoic Fluvial Deposits

The valleys of the Huon and Mountain Rivers contain both Tertiary and Quaternary fluvial deposits. These deposits are semi-consolidated, ill-sorted sedimentary material which shows very little evidence of bedding and is composed mainly of sub-rounded quartzite or dolerite pebbles and cobbles set in a matrix of sand and silt. The size of the quartzite cobbles varies up to 15 cm. and of the dolerite up to 40 cm. The sand and silt grade particles of the matrix tend to be sub-angular. In addition to quartzite and dolerite cobbles, other rock fragments are common.

Lewis (1935) on evidence in other parts of Tasmania distinguishes the deposits containing quartzite material from those containing predominantly dolerite and mudstone particles. He considers the former to be of Tertiary age and the latter of Quaternary age.

At locality 492100E—705100N, near the old wharf at Ranelagh, fluvial deposits composed mainly of ill-sorted quartzite pebbles in a matrix of sand and silt underlie basalt. These deposits unconformably overlie Permian mudstone, and are considered to be of Tertiary age. Lewis (1935, p. 81) has referred to this exposure.

Fluvial deposits composed predominantly of doleritic material have been observed to lie above the basalt. At locality 494900E—707300N, basalt is overlain by fluvial deposits containing quartzite particles.

In places these fluvial deposits can be recognised as constituting river terraces. Owing to recent erosion and cultivation it is difficult to trace more than one terrace margin with any certainty.

Throughout the area there are occurrences of Recent alluvium situated at not more than 10-15 feet above the present stream levels.

IGNEOUS ROCKS

Jurassic Dolerite

This is the dominant igneous rock type found within the area. It occurs as intrusive masses within the Permo-Triassic sediments, where it has formed sills and transgressive bodies with associated dykes.

A partly transgressive sill occurs within the Knocklofty Sandstone and Shale Formation, the base level varying from 220 feet to 900 feet above the lower boundary of this formation. It has not been possible to determine the thickness of this body, but at least several hundred feet of it are exposed within the area.

There are smaller secondary sill-like bodies up to 120 feet thick which occur at or near the Permo-Triassic boundary. Some of these may be outliers separated from the main overlying sill by erosion.

The transgressive bodies are associated with faulting which accompanied the dolerite intrusion. Often where the dolerite has come into contact with sediments, these show signs of metamorphism. Also in many localities chilled margins of very fine dolerite have been observed.

The dolerite is the normal type, containing labradorite laths up to 1 mm. and augite crystals up to 2 mm.

Tertiary Basalt

Basalt was only observed at two localities and in each case is overlain by fluviatile deposits. At locality 494900E—707300N, its base is obscured, but at locality 492100E—705100N, near Ranelagh it conformably overlies fluviatile deposits. The flow at this locality is from 10-15 feet thick.

The basalt is vesicular in part, the vesicles being up to 4 mm. At the first locality mentioned, the vesicles show slight elongation due to flow and are parallel to the present direction of the river where they occur. Pillows can be seen towards the base of the flow.

Microscopic examination shows labradorite up to 0.1 mm. and olivine crystals up to 0.8 mm.

A Pliocene age has been suggested for other basalts in Tasmania (Hills and Carey, 1949, p. 36) so in the absence of contrary evidence this basalt is regarded as Pliocene in age.

STRUCTURAL GEOLOGY

The structure of this area dates from the Jurassic. When the dolerite was intruded through the older basement rocks into the Permo-Triassic sediments, it rose vertically as dykes and inclined transgressive bodies, as well as spreading laterally as sills at favourable levels. This resulted in a differential vertical movement of gigantic blocks of sediment. To allow this movement, widespread concomitant faulting occurred.

In most cases the highlands are capped with dolerite sills. However, the highest peak in the area, Mount Misery (2279 feet), is composed of Knocklofty Sandstone.

In the western part of the area in the vicinities of localities 480000E—701000N, 482800E—703000N, and west of Dora Creek, are shown the remnants of a dolerite sill which stands approximately 250 feet above the base of the Knocklofty Sandstone.

Faults concomitant with the dolerite intrusion break across this region with a north-south trend. It is through these breaks that the dolerite has fed the sills above. The transgressive dolerite masses situated between Dora and Judds Creeks, and south of Dickenson Creek mark the positions of the main breaks. The presence of metamorphosed sediment and fine grained dolerite along the margins of these breaks support their concomitant nature.

The highlands east of Judbury are capped by a partly transgressive dolerite sill which stands at 220 feet above the Permo-Triassic boundary. Further to the east its height above this boundary increases to 600 feet. The dolerite at locality 486000E—709300N, is a transgressive body fed from this sill.

South of Glen Huon the highlands are capped by a dolerite sill which stands 900 feet above the Permo-Triassic boundary and extends east to Huonville. To the south this sill passes into longer transgressive masses of dolerite from which it has probably been fed.

There is a persistent Jurassic fault trending south-west from Grove. It marks the boundary of the large dolerite mass on its south-east with the Permian and Triassic sediments which skirt the eastern side of the broad valley of the Mountain River. The eastern margin of this dolerite mass is defined by another fault which trends north-east from Pelterata.

The lowest block in the area is about a mile north of Pelterata. Feldspathic Sandstone is exposed in stream banks where it underlies dolerite. This dolerite capped block of Feldspathic Sandstone is faulted against Knocklofty Sandstone to the south. The southern and western margins of this block and the western margin of the Feldspathic Sandstone block are bounded by dolerite.

There is an inlier of dolerite in the Knocklofty Sandstone east of Pelterata. It has an intrusive contact with the surrounding sediment and is probably continuous with the dolerite to the south at a small depth below the surface.

The structure in the vicinity of locality 497500E—705000N, is shown by section A-B. The sandstone block shown in the south-east of the section appears to be an isolated "floating" block.

In the north-east of the area, is a sedimentary block bounded on the north, west and south by dolerite. The dolerite is well jointed to the west; the joints strike at 110° and dip at 60° to the north. Although the dolerite tends to be fine grained at the contact with the sandstone to the east where it is exposed in a road cutting at locality 499130E—709130N, the sandstone appears to be free from metamorphism. This fault has been regarded as concomitant with the dolerite intrusion, but the possibility of its being a Tertiary fault should not be overlooked, although no evidence of this was found to the south-east.

To the west towards Grove, Knocklofty Sandstone is exposed at least 200 feet below the base of the sandstone in the sedimentary block to the east. South of Grove, Risdon Sandstone is exposed 250 feet below this base. The transgressive nature of the igneous contact of the dolerite with the Fern-tree Mudstone is shown in a quarry at locality 497870E—709090N.

Repetition of the Risdon Sandstone south of Grove suggests one or two strike faults with small throws of about 50 feet.

At various localities including 496260E—709000N, 495700E—707000N, and 495300E—706300N, the Risdon Sandstone is exposed below the fluvial deposits of the Mountain River. This indicates that the rock underlying this terrace material is composed of the base of the Fern-tree Mudstone and the top of the Woodbridge Glacial Formation. The under-

lying sediments were examined at the terrace margins, but it is difficult to determine the structure of this blanketed region.

The rocks on the north and south of the Huon River west of Glen Huon appear to rank, but on proceeding to the east those to the south are found to be relatively lower, which suggests an east-west fault along the Huon River. This is supported by evidence near the old wharf at Ranelagh where fossiliferous Grange Mudstone strikes into Knocklofty Sandstone. This indicates a vertical displacement of at least 700 feet. Although this fault is covered by alluvial material for the greater part of its length, its western extremity appears to be associated with a Jurassic fault at locality 483300E—702550N. Just east of this point there is evidence for a throw of 200 feet as shown by the relative positions of the Permo-Triassic boundary. The extension of this fault east of Ranelagh is in doubt, but it does not appear to emerge on the eastern side of the Mountain River Valley.

There appears to be a fault down the Mountain River Valley which would account for this, and also the fact that the Ferntree Mudstone east of Lucaston does not rank with the Woodbridge Glacial Formation to the west. It would also account for the discrepancy in levels of the sandstones near Huonville, where the Knocklofty Sandstone and Shale exposed in the west bank of the Huon River are stratigraphically above the sandstone exposed about a mile to the east. The observed dips fail to account for this.

In the central north of the area, there are several sandstone-sandstone faults associated with faults concomitant with the dolerite intrusion which are responsible for the elevated position of the Mount Misery block. At the base of the eastern scarp of Mount Misery, material resembling the base of the Knocklofty Sandstone is exposed against sandstone which is at least 200 feet stratigraphically above the Triassic base. A few isolated pieces of very fine grained dolerite were found in the soil. Dolerite is exposed both to the north and south of this locality.

In the vicinity of locality 487500E—702500N, is a down faulted block with a displacement of at least 200 feet at its northern extremity.

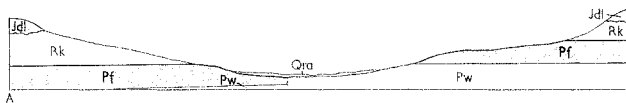
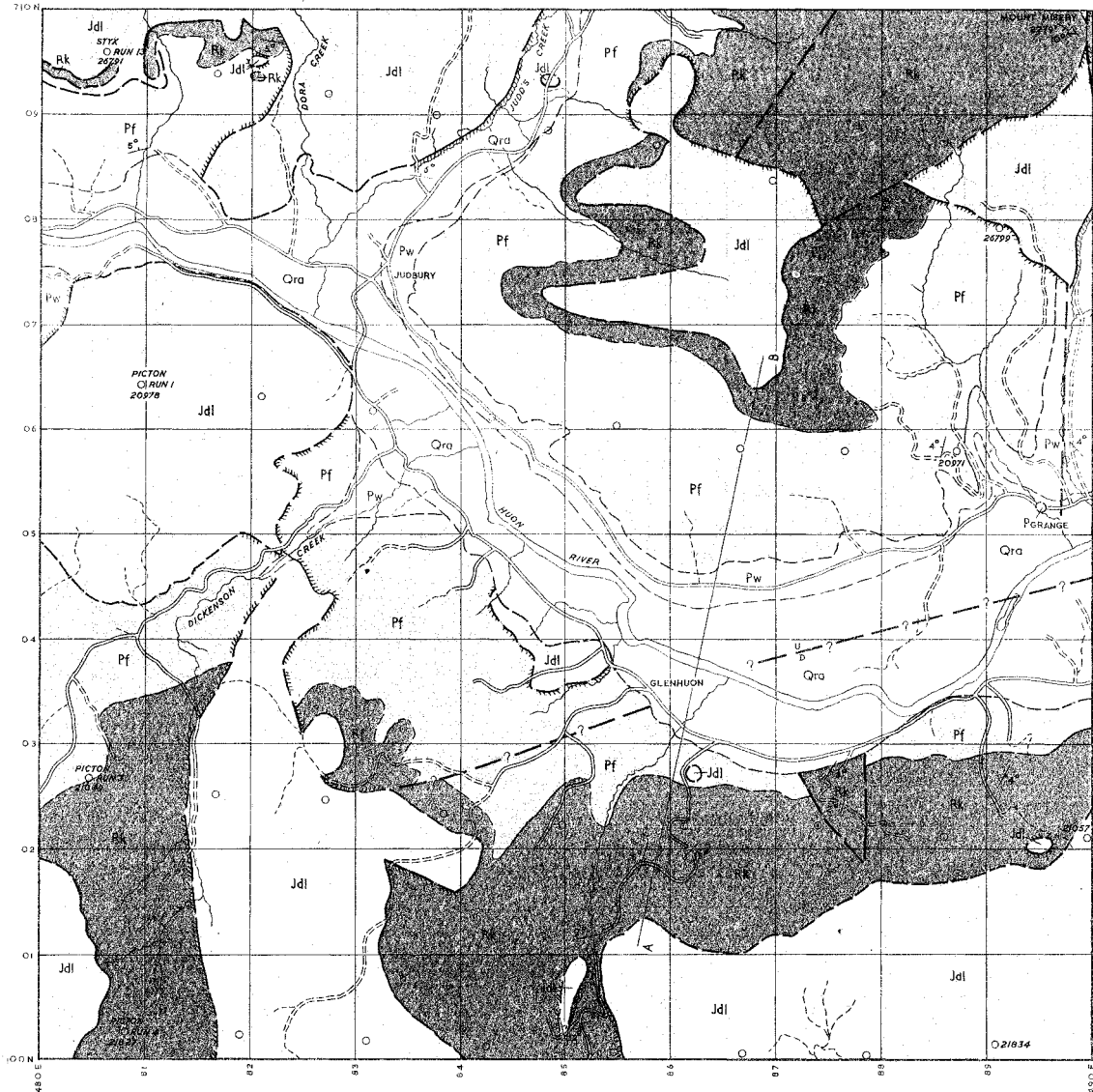
LOCALITY INDEX

	Internat. Grid Reference K/55 Quadrangle		S.Lat.	E.Long.
Blackfish Creek	Hobart	82	43° 00'	147° 6'
Dickenson Creek	Picton	87	43° 2'	146° 51'
Dora Creek	Styx	81	42° 59'	146° 51'
Fourteen Turn Creek	Hobart	82	42° 59'	147° 7'
Franklin	Kingborough	88	43° 5'	147° 1'
Glen Huon	Picton	87	43° 2'	146° 57'
Grove	Hobart	82	42° 59'	147° 5'
Huon River	Kingborough	88	43° 2'	147° 4'
Huonville	Kingborough	88	43° 2'	147° 4'
Ironstone Creek	Kingborough	88	43° 2'	147° 5'
Judbury	Styx	81	43° 00'	146° 56'
Judds Creek	Styx	81	42° 59'	146° 52'
Lucaston	Hobart	82	42° 59'	147° 3'
Mountain River	Hobart	82	42° 59'	147° 4'
Mt. Misery	Hobart	82	42° 59'	147° 00'
Pelverata	Kingborough	88	43° 3'	147° 7'
Ranelagh	Picton	87	43° 1'	147° 2'

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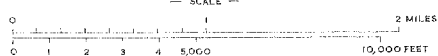
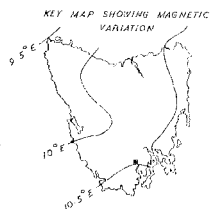


LEGEND

- U
D
FAULT WITH DOWNTHROWN SIDE INDICATED
 --- FAULT - POSITION APPROXIMATE
 - - - FAULT INFERRED
 --- FORMATION BOUNDARY
 Dolerite Boundaries
 --- CONCORDANT SILL
 TTTT DISCORDANT INTRUSIVE BOUNDARY
 S S STRIKE AND DIP
 --- ROAD
 --- VEHICULAR TRACK
 --- FOOT TRACK
 O PHOTO CENTRE
 Δ TRIGONOMETRICAL STATION

- Cainozoic Rocks
 Qra ALLUVIUM AND SUB-BASALTIC GRAVELS
 Triassic System
 Rk KNOCKLOFTY SANDSTONE AND SHALE
 Permian System
 Pf FERNREE MUDSTONE
 Pw WOODBRIDGE GLACIAL FORMATION
 IGNEOUS ROCKS
 Jurassic System
 Jdl DOLERITE

Compilation from Aerial Photographs.
 Trigonometric Station Control by
 courtesy Lands and Surveys Department
 Origin of co-ordinates 400,000
 yds West and 1,800,000 yds
 South of True Origin of Zone 7



MAPPED AND COMPILED BY
 R.P. MATHER JANUARY, 1952.

THE GEOLOGY OF GLEN HUON.

SHEET 48-70.

PHYSIOGRAPHY.

The Huon River is in valley tract throughout this sheet and its various tributaries mainly in mountain tract. The course of the Huon below Glen Huon is probably fault controlled. Terraces on Judd's Creek and the Huon above Judbury are at a level of about 250 feet above sea level, and the Huon is entrenched about 100 feet in these terraces.

STRATIGRAPHY.

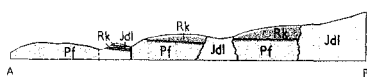
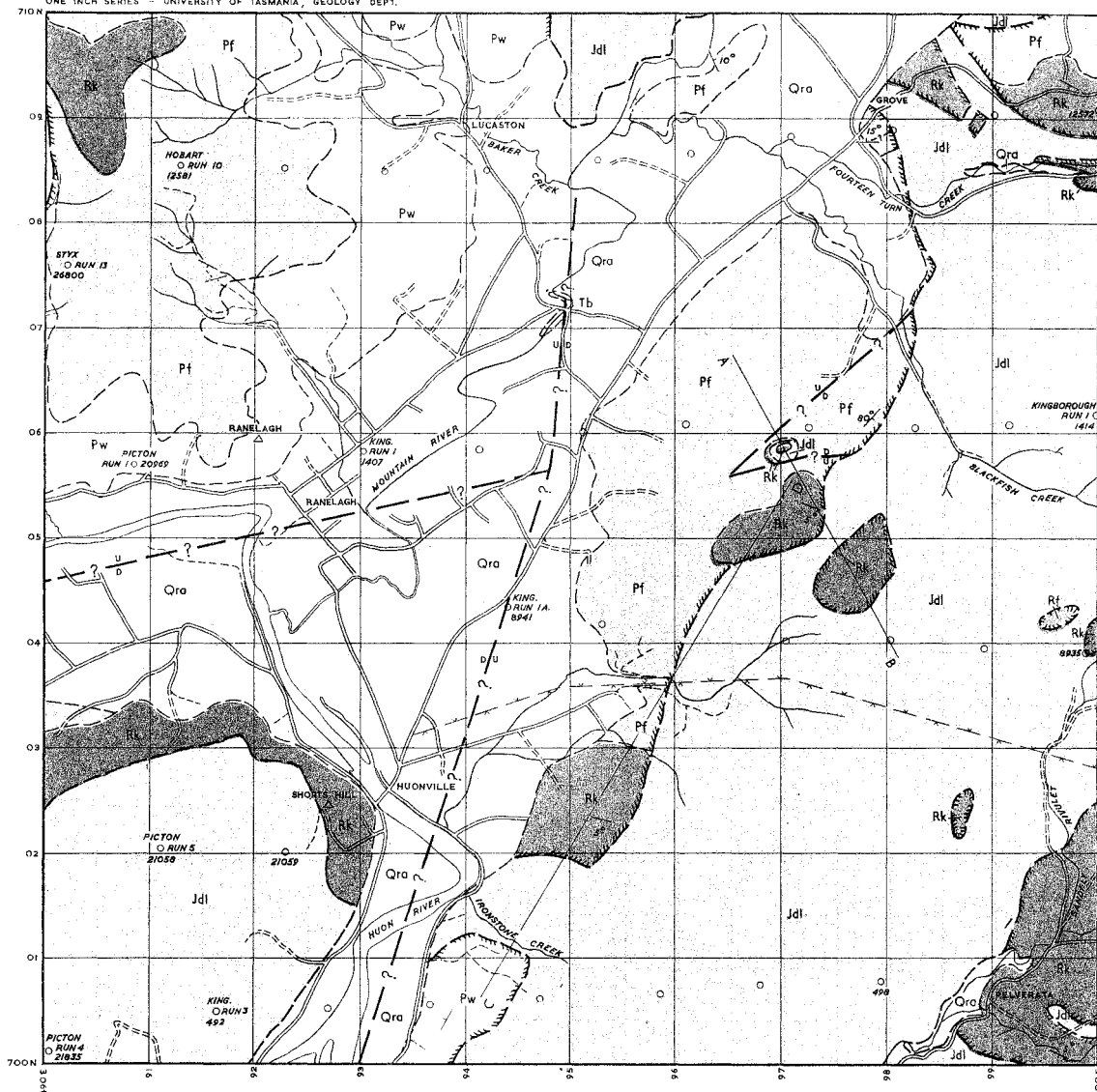
The oldest rocks exposed belong to the Grange Mudstone of the Permian System and are overlain by the Woodbridge Glacial Formation which underlies the Ferntree Mudstone which is only 490 feet thick at Judbury, although it increases in thickness to the north-east. South of Glen Huon over 900 feet of Knocklofty Sandstone and Shale of the Triassic System overlie the Ferntree Mudstone. Dolerite occurs in this area as a sill transgressing from just above the base of the Knocklofty Sandstone and Shale north of the river to as much as 900 feet above the base to the south of the river.

STRUCTURE.

The main structure is that of horizontal or subhorizontal beds injected by dolerite along steep contacts trending somewhat east of north along Dickenson's and Judd's Creeks. These beds are displaced by a fault trending north of east along the Huon River but this fault apparently does not displace the dolerite.

REFERENCE.

Mather, R. P., 1955: The Geology of the Huon District, **Pap. Proc. Roy. Soc. Tas. Vol. 89.**

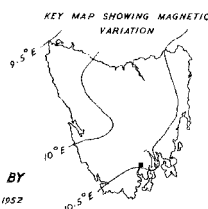


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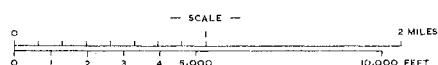
- U — FAULT WITH DOWNTHROWN SIDE INDICATED
- — — FAULT — POSITION APPROXIMATE
- ? — FAULT INFERRED
- — — FORMATION BOUNDARY
- — — Dolerite Boundaries
- — — CONCORDANT SILL
- — — DISCORDANT INTRUSIVE BOUNDARY
- — — STRIKE AND DIP
- — — ROAD
- — — VEHICULAR TRACK
- — — FOOT TRACK
- — — TRANSMISSION LINE
- PHOTO CENTRE
- △ TRIGONOMETRICAL STATION

- Cenozoic Rocks**
- Ora** ALLUVIUM AND SUB-BASALTIC GRAVELS
- Triassic System**
- Rf** FELDSPATHIC SANDSTONE
- Rk** KNOCKLOFTY SANDSTONE AND SHALE
- Permian System**
- Pf** FERN TREE MUDSTONE
- Pw** WOODBRIDGE GLACIAL FORMATION
- IGNEOUS ROCKS**
- Tertiary System**
- Tb** BASALT
- Jurassic System**
- Jdl** DOLERITE

Compilation from Aerial Photographs.
Trigonometric Station Control by
courtesy Lands and Surveys Department.
Origin of co-ordinates 400,000
yds West and 1,800,000 yds
South of True Origin of Zone 7.



MAPPED AND COMPILED BY
R.P. MATHER
JANUARY, 1952



THE GEOLOGY OF HUONVILLE.

SHEET 49-70.

PHYSIOGRAPHY.

The Huon River in this sheet is in valley tract with estuarine deltaic features below Huonville. The Mountain River, chief tributary of the Huon, is in plains tract south of Lucaston. River terraces fall uniformly in height, from about 250 feet above sea level at Grove to 50 feet at Franklin and the Mountain River is entrenched by as much as 90 feet and the Huon by 80 feet. Other terraces occur. Streams are generally entrenched by 10 feet in the lowest terraces. Tributaries of the Huon and Mountain Rivers are mainly in mountain tract. The Huon flows between the highlands of the Wellington block to the north-east and those of the Hartz block to the south-west.

STRATIGRAPHY.

Permian rocks are the oldest exposed in the area with about 200 feet of Woodbridge Glacial Formation occurring north-west of Ranelagh and overlain by from 470 to 600 feet of Ferntree Mudstone. Triassic rocks, Knocklofty Sandstone and Shale, occur on the heights west of Lucaston, near Grove, Pelverata and along the south bank of the Huon above Huonville. Isolated outcrops of Feldspathic Sandstone occur north of Pelverata. Cainozoic river deposits occupy the valley floors. Dolerite occurs mainly as a slightly transgressive sill in the Knocklofty Sandstone and Shale and as a wide dyke east of Huonville. Basalt is exposed in the bed of the Mountain River a mile and a half above Ranelagh and the base shows pillow structure.

STRUCTURE.

The main structure is a Jurassic fault trending south-west from Grove with a roughly parallel fault at Pelverata. There is probably another fault trending just east of north through Huonville. To the west of this fault the Permian and Triassic rocks are almost horizontal. A fault striking just south of west probably underlies the Huon River west of Huonville.

POINTS OF SPECIAL INTEREST.

Tertiary basalt with pillows 492100 E—705100 N
River terraces: main road near Fourteen Turn Ck.
Grange Mudstone (?): old wharf, Ranelagh.
Knocklofty Sandstone and Shale: Scott's Hill.

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