昭和八年三月

窪川

縱行一八橫行三四
圖幅第二五一號

地質說明書

地質調査所

窪川 縦行一八横行三四 圖幅第二五一號 地質說明書

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窪川 縦行一八横行三四 圖幅第二五一號 地質說明書 （昭和五年九月稿）

商工技師 鈴木達夫

第一章 地質

一 四萬十統

(一) 頁岩層

本層ハ主トシテ頁岩ヨリ成リ、砂岩、放散蟲頁岩ヲ挟ムモノナリ

頁岩 灰色、暗灰色、帶綠灰色ヲ呈ス、板狀ニ剝離スルモノト塊狀ヲ呈シ時ニ小片ニ破碎シ易キモノトアリ、幡多郡白田川村灘附近ノモノハ大サ十糎内外ノ圓柱狀、橢圓球狀、或ハ不規則形ノ泥灰岩ヲ埋藏ス、頁岩ハ厚サ十米内外毎ニ砂岩ヲ夾メルヲ普通トスレトモ時ニ一層ノ厚サ

百米ニ達スルモノアリ

砂岩　灰色ヲ呈シ中粒ノ石英、長石、雲母ヨリ成リ灰色ノ粘土質物ヲ以テ膠結セラレ堅硬ナリ、本岩ハ三米内外ノ厚サヲ以テ頁岩中ニ介在ス

放散蟲頁岩　赤色ヲ呈シ緻密堅硬ナリ、之ヲ顯微鏡下ニ檢スルニ放散蟲ノ形骸ヲ包藏ス、本岩ハ頁岩層中ニ二米内外ノ厚サヲ以テ介在セリ

構造　最モ廣キ發達ヲ示セル白田川村川口及白濱間ニ於ケル本頁岩層ハ北ハ四萬十統上部ノ砂岩頁岩層ニ被ハレ南ハ西灘附近ヲ東西ニ走レル斷層ヲ以テ田ノ口砂岩層ニ接シ東西乃至北東ニ走リ、北方、南方又ハ南東方ニ五十度乃至八十度傾斜シテ褶曲シ以テ一向斜及一背斜構造ヲ形成ス、白濱西灘間ニ於テハ小斷層アルヲ目擊セリ、厚サハ概算スルニ約千五百米アルモノヽ如シ

浮鞭及入野村ニ於ケル本頁岩層ハ其周緣東西、南北及北東—南西ニ走レル斷層ヲ以テ限ラレテ一地塊ヲ成シ北東ヨリ南西ニ走リ北西方ニ三十度乃至七十度傾斜シ單斜層ヲ成ス、此地ノ本層ノ厚サモ約千五百米アルモノト推測セラル

(二)　砂岩頁岩層

本岩ハ砂岩頁岩ノ互層ヨリ成リ放散蟲頁岩、石灰岩及蠻岩ヲ伴ヘリ

頁岩　厚サ〇・一米内外ヲ以テ砂岩ト薄キ互層ヲナセルモノト厚サ一米乃至五米或ハ十米乃至二十米ヲ以テ砂岩ト厚キ互層ヲナセルモノトアリ、本岩ハ灰色、暗灰色、帶綠灰色又ハ黑色ヲ呈シ緻密ナルモノ及稍砂質ヲ帶ヘルモノアリテ堅硬ナリ、又塊狀ノモノ、板狀ナルモノ及泥灰岩球ヲ包藏スルモノ等アリ、就中灰色頁岩ハ最モ良ク發達シ塊狀ニシテ露頭ニ於テハ小片ニ破碎シ易ク風化シテ稍柔軟トナレリ、黑色頁岩ハ稀ニシテ概ネ堅硬且ツ硅化セルモノアリテ屢々之ヲ貫通セル石英脈ヲ有スルコトアリ

砂岩　灰色或ハ暗灰色ヲ呈ス、細粒乃至粗粒ノ石英、長石ヨリ成リ灰色粘土質物ニテ膠結セラル、普通〇・一米内外或ハ一米乃至五米ノ厚サヲ以テ頁岩ト互層セルモ時ニ一層ノ厚サ十米或ハ三十米ニモ達スルコトアリ

放散蟲頁岩　厚サ一米乃至十米、普通二米内外ノ厚サヲ以テ頁岩中ニ介在シ、赤色ヲ呈スルモ時ニ綠色ノモノアリ、多クハ粘土質ニシテ板狀ニ剝離シ風化面ハ柔軟トナリ土狀ヲ呈スルニ至ルモ時ニ緻密堅硬、硅質ニシテ硅板岩ト稱スヘキモノアリ、東又村小鶴津、久禮町立目、小草、富山村常六ニ露出セルモノハ卽チ是レナリ

石灰岩　窪川町家地川ノ頁岩中ニ發見セラレ圖幅内ノ唯一ノ石灰岩ナリ、露出部ニアリテ

ハ厚サ〇.五米、長サ〇.八米、幅〇.五米ニシテ扁桃狀ヲ呈ス、本岩ハ暗灰色ヲ呈シ、中ニハ烏ノ巢石灰岩中ニ發見セラルヽ層孔蟲類及石灰藻類ノ化石ニ酷似セルモノヲ含ミ又岩質モ烏ノ巢石灰岩ト同樣ナリ

鑒岩　暗灰色ヲ呈シ砂岩ニ移化シ直徑一糎內外ノ白色硅岩ノ圓礫ヲ膠結スルニ細粒ノ長石、石英、雲母等ヲ以テシ厚サ一米乃至三米ナリ

構造　本層ハ圖幅地ノ大部分ニ發達シ斷層ニヨリテ東部海岸地方、北部山地、中央部、南西部山地等ノ數區ノ地塊ニ分タル、北部山地ノ地塊ニテハ北方ノ須崎及高知兩圖幅地ニ於ケルカ如ク其一般走向東西ニ近キモ其他ノ中央部海岸地方及南西部地塊ニアリテハ南北、北東—北西或ハ北西—南東等ノ一般走向ヲ示シ地層ハ斷層ニヨリテ地塊ニ分カタル、以前ニ於テ既ニ激シキ褶曲ヲ蒙リ居リシモノヽ、如ク以テ斯ノ如キ構造ノ區々且ツ複雜ナル地塊ヲ現出シタルモノナラム

東部海岸地方ニアリテハ本層ハ與津崎地塊ヲ除キ東又村志和、與津村、佐賀村ニ亙リ下部ニ放散蟲頁岩ヲ挾有シ上部ハ砂岩頁岩ノミノ累層ナリ、其走向ハ北東ヨリ南西ニシテ北西ニ四十度乃至八十度傾斜セル單斜層ヲ爲シ中ニ二三ノ走向斷層アルモノヽ、如シ、而シテ西方ハ四萬十川支流若井川附近ヲ通シテ北東ヨリ南西ニ走レル一向斜層ニ達ス

窪川、川角地方ノ岩層ハ略南北ニ走リ傾斜ハ西川角ニ於テ西方ニ五十度、拂川奥ニ於テ東方四十度、中神川ニ於テ西方ニ五十度ニシテ褶曲シ向斜及ヒ背斜層ヲ構成ス

北方山地卽チ檜生原、芳川地方ニ於テハ砂岩頁岩層ノ下部ト推察セラルヽ岩層ノ發達セル「カツラ」谷及ヒ相去ニ在リテハ放散蟲頁岩之ニ介在スルモ上部ト推定セラルヽ岩層ノ發達セル檜生原、川奥谷ニ於テハ之ヲ發見セス、走向ハ東西、傾斜ハ北方ニ四十度乃至八十度ニシテ單斜層ヲ構成シ其間ニ東西ニ走レル走向斷層數條アリ

中央部ニ於テハ家地川ノ南ニ當リ東西ニ走レル向斜層アリテ之ヨリ北方及南方ニ下部層露出シ南翼ノ富山村及伊與木川ニ於テハ下部層中ニ放散蟲頁岩ノ介在セルヲ檢ス、走向ハ富山村ニ於テ約東西、其南東方打井川、伊與木川ニ於テ西北西ヨリ北西ニ轉向シ不破原附近ニ於テ南北トナリ傾斜ハ各北、北々東、北東、東方ニ四十度乃至八十度、普通六十度內外ナリトス、北翼卽チ四萬十川附近ニ於テハ走向針ノ木、野地ニ於テ東西、若井ニ於テ北東トナリ傾斜ハ南或ハ南東ニ三十度乃至八十度普通六十度內外ナリ、猶天川、川口附近ニ於テハ南北及約東西ニ走レル斷層ニヨリ小區域ノ地塊ニ分タル

南西部山地佛ケ森、足川附近ニ於テハ砂岩頁岩層ハ北々東—南々西ニ走リ、西北西ニ四十度乃至八十度傾斜シ又白田川村ニ於テハ北東ヨリ南西ニ走リ北西ニ斜下スルコト七十度內外

ニシテ北西ニ向ヘル單斜層ヲナス、七郷村「ダバ」地方ハ前記ト走向ヲ異ニセル一ツノ地塊ヲ爲シ東西ニ走リ北方ニ六十度内外傾斜セリ

時代　本層ハ幾多ノ斷層ニヨリテ截斷セラレ其厚サヲ正確ニ計算シ難キモ與津、窪川間ニ於テ約二千五百米、伊與木川ニ於テ四千米内外、白田川村ニ於テ四千米以上ニ概算セラル、各地塊ノ累層ヲ見ルニ概シテ下部ノ砂岩頁岩層中ニ放散蟲頁岩ヲ夾有シ上部ノ砂岩頁岩層ニハ之ヲ缺キ唯窪川町家地川ニ於テ頁岩中ニ一石灰岩層ヲ夾有セリ、本石灰岩ニハ烏ノ巢石灰岩中ニ發見セラレタル石灰藻及層孔蟲ニ酷似セル化石ヲ包藏セリ、故ニ本石灰岩ノ時代ハ上部珠羅紀ニ屬セシムヘク下部ノ放散蟲頁岩ヲ夾メル砂岩頁岩層竝ニ四萬十統ノ頁岩層モ大部分ハ珠羅系トスルヲ得ルカ如シ、然レトモ本地ノ四萬十統ノ一部ニハ上部珠羅系ニ伴ヒテ下部白堊系ノナキヲ保シ難シトス

二　田ノ口層

本層ハ砂岩及頁岩ヨリ成リ或ハ四萬十統ノ一部ナランヤノ疑ヒ存スルモ唯其分布地域ヲ異ニシ又砂岩ハ一見其膠結ノ度低ク頁岩モ柔軟ナリトシ岩質ヨリ之ヲ觀レハ四國南東部ノ

奈半利川層ニ類似シ白堊系乃至古第三系ニ屬スルモノナラン

砂岩　灰白色或ハ灰色ヲ呈ス、石英及長石ノ細粒乃至中粒ヨリ成リ灰白色粘土質物ニヨリテ膠結セラレ奈半利川層ノ砂岩ニ酷似セリ、本岩ハ厚層ヲ爲シテ頁岩ト互層シ一層ノ厚サ三十米乃至五十米ニ達ス

頁岩　帶綠灰色ヲ呈シ稍柔軟ニシテ小片ニ破碎シ易シ、五米内外ノ厚サヲ以テ砂岩ト互層ス

構造　本層ハ井ノ岬及田ノ口村ノ二箇處ニ露白シ北ハ西灘附近竝ニ蠭瀨川ヲ通スル各東西ニ走レル斷層ヲ以テ北方ノ珠羅紀四萬十統ニ接セリ、井ノ岬區域ニ於テハ本層ハ北東ヨリ南西ニ走リ北西方ニ五十度乃至八十度傾斜シ、田ノ口村ニ於テハ殆ント東西ニ走リ北方八十度ニ傾斜セリ

三　更新統

本層ハ七郷村浮鞭及入野村早崎ニ於テ臺地ヲ爲シテ發達シ砂礫層ヨリ成ル、砂礫層ハ主トシテ硅岩及砂岩ノ拳大乃至人頭大ノ礫及砂ヨリ成リ之ニ砂層ヲ挾メルモノニシテ厚サ二米

乃至十五米アリ

四　現世統

本層ハ河流ノ沿岸及海岸ニ發達セル沖積層ニシテ粘土及砂礫層ヨリ成ル、與津及入野ノ海岸ニ於テハ稍廣キ砂丘發達セリ

第二章　應用地質

銅鑛　嘗テ富山村大屋敷、白田川村内ノ數箇處ニ於テ頁岩中ニ鑛瘤ヲ成セル含銅黃鐵鑛ノ發見セラレタルコトアルモ巡回當時ニ於テハ全ク其跡ヲモ見ス、從ヒテ鑛床ノ性狀明カナラス

鐵鑛　明治三十年ノ頃白田川村天上森附近ニ於テ四萬十統中ニ褐鐵鑛ノ成層鑛床？發見セラレ試掘セラレタルコトアルモ巡回當時ハ鑛床ノ跡ヲモ認メ得ス、從ヒテ其性狀不明ナリ

安質母尼鑛　白田川村太字蜷川、米原及伴太郎ニ於テ明治四、五年ノ交ニ發見採掘セラレタ

ルコトアリ、其後明治十九年ヨリ同三十年頃マテ採掘セラル、鑛床ハ砂岩、頁岩層中ニ鑛脈ヲ成シ、石英ノ脈石中ニ鐚安鑛ヲ包藏セルモノナリト云ヒ、採掘當時ノ狀態ハ二十萬分之一須崎圖幅地質說明書中ニ詳述セラレタリ、巡回當時ハ全ク其跡ヲ止メサル以テ其後ノ鑛床ノ性狀明カナラス

滿俺鑛　田ノ口村下田ノ口附近ニ發達セル放散蟲頁岩中ヨリ滿俺鑛ノ試掘セラレタルコトアルモ品質劣等ナリシト云フ

陶土　沖積層ノ粘土ハ入野村、白田川村、七郷村、窪川町、田ノ口村等ニ於テ採掘セラレ瓦燒用陶土トシテ利用セラルヽモ瓦ノ產額ハ地方ノ需用ヲ充ス程度ナリ

石材　四萬十統及田ノ口層ノ砂岩ハ各地ニ於テ採掘セラレ石垣石、墓石、土臺石トシテ使用セラルヽモ地方ノ需用ニ供スルニ過ス

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EXPLANATORY TEXT
OF THE
GEOLOGICAL MAP OF JAPAN

Scale 1 : 75,000

KUBOKAWA

Zone 34 Col. XVIII

Sheet 251

By

TATSUO SUZUKI

GEOLOGY

Jurassic (**Shimanto Series**) is here divided on the lithological basis into two beds; the lower, the Shale Beds and the upper, the Sandstone and Shale Beds.

Shale Beds consist of gray to dark gray shale with intercalations of gray sandstone and red radiolarian shale. The strike of the Beds at Shirahama is nearly from east to west, and toward southwest from there change its trend to northwest, the dip being always northward at angles varying from 40° to 80°. In the faulted block of the Ukimuchi-Irino area, the beds strike from northeast to southwest, dipping to northwest at angles varying from 30° to 70°. The estimated thickness of the beds is about 1,500 metres.

Sandstone and Shale Beds consist chiefly of thick bedded alternations of gray sandstone and shale with intercalations of thinly banded alternation of sandstone and shale. The Beds cover the greater part of the sheet-map area, where they are broken into several faulted blocks. The general trend of the strata is various in each block. Thus in the northwestern mountainous land there is found a monoclinal structure dipping toward north at angles from 40° to 80°. In the coastal belt, the beds show a dominant strike of north 50° east and northwestward dips varying from 40° to 80°. In the Shimantogawa basin, there is a synclinal structure, the axis of which is seen to strike from east to west at Iyejigawa and from northeast to southwest near Wakaigawa. On the northern wing of this syncline, the Beds strike from northeast to southwest or from east to west, whereas on the southern wing they strike from northwest to southeast or from north by west to south by east as seen at Ichinono and Iyokigawa, the dip being from 40° to 80° toward northeast or east-north-east, although they run from east to west and dip to north in the west. In the southwestern mountain land, there are found monoclinal strata striking north 20°–60° east and dipping 40°–80° to northwest. The thickness of the Sandstone and Shale Beds is roughly estimated at 4,000 metres from a geological profile made through Yotsu and Kubokawa. A limestone bed at Iyejigawa in Kubokawa-machi which is interbedded in the Sandstone and Shale Beds contains fossils of *Stromatopora* and calcareous algae quite similar

to those described from the Upper Jurassic Torinosu Limestone. On this account the whole Shimanto Series including both the lower Shale Beds and the upper Sandstone and Shale Beds is presumed to be Jurrassic in age.

Tanokuchi Series consists mainly of gray sandstone with a less amount of gray to green shale. As compared with the Shimanto Series, the component rocks are more loosely consolidated and have a younger aspect. It is assumed that the series is of late Mesozoic or early Tertiary age. In the peninsula of Inosaki the series has the strike of north 40° east, dipping about 60° to northwest, while in Tanokuchi district, it runs from east to west with northward dip at 60° or more.

Pleistocene (?) consists of gravel and sand layers forming terraces about 20 to 30 metres high at Hayasaki and Ukimuchi.

Recent is composed of clay, gravel and sand forming alluvial plains along rivers. On the sea coast of Irino and Yotsu sand dunes are found to be developed.