昭和八年三月

鹿島

縱行三橫行二三
圖幅第一〇四號

地質說明書

地質調査所

鹿鳴 縦行三横行二三圖幅第一〇四號 地質說明書

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鹿嶋縦行三横行二三圖幅第一〇四號　地質說明書

（昭和五年九月稿）

商工技師　三土知芳

第一章　地質

一　鮮新統

本統ハ銚子圖幅地ヨリ連亙シテ下ヨリ砂質凝灰岩、凝灰質頁岩及凝灰質砂ノ三層ヨリ成レトモ本圖幅地ニ於テハ砂質凝灰岩ハ露出セス

凝灰質頁岩　青灰色又ハ綠灰色ニシテ乾燥スレハ淡灰色ヲ呈シ砂質ニシテ粘土質物ノ外石英、長石、蛇紋巖石、單斜輝石、角閃石、玻璃等ノ破片竝ニ磁鐵鑛粒、雲母及綠泥石片ヲ混有シ且時ニ夥シキ浮石粒ヲ含ムコトアリ、本岩ハ無層理ナルモ厚サ五糎乃至三十糎ノ浮石砂層ヲ挾有

スルコトアリテ層理ヲ示ス、又大サ二十粍以下ノ不規則形ヲ成セル石灰質結核ヲ有スルコトアリ、本岩中ニハ普遍的ニ少量ノ介殻及有孔蟲ノ化石ヲ産ス、化石名左ノ如シ

Voluta megaspira Sow.
Polinices pallidus Brod. et Sow.
Buccinum surugonum Dall
Neptunea intersculpta Sow.
Bathybembix argenteonitens Lke.
Dentalium weinkauffi Lam.
Raeta pulchella Ad. et Rve.
Modiola modiolus L.
Limopsis tokaiensis Yok.
Yoldia naganumana (Yok.)

凝灰質砂　新鮮ニシテ濕潤セルモノハ青灰色ヲ、乾燥セルモノハ淡灰色ヲ呈シ風化セルモノハ淡黄灰色ヲ呈ス、一般ニ細粒均質ニシテ殊ニ本岩層ノ下部ニ於ケルモノハ極メテ細粒ニシテ粘土質ヲ帯ヘルモ上部ニ於テハ時ニ中粒ニシテ大サ二粍以下ノ少量ノ角岩、粘板岩等ノ

礫ヲ含メル砂ノ「レンズ」若クハ薄層ヲ挾ミ且僞層ヲ示スコトアリ、成分ハ石英、長石、雲母、紫蘇輝石、單斜輝石、角閃石等ノ破片若クハ圓粒ニシテ其ノ大サ〇・一五粍乃至〇・三粍ヲ普通トシ多少ノ玻璃片、磁鐵鑛粒及粘土質物ヲ混有スル外時ニ夥シキ浮石粒ヲ含ムコトアリ、又處ニヨリテ厚サ十糎乃至二十糎ノ黄白色粘土層又ハ粘土ノ小塊ヲ挾有ス、香取郡豐里村諸持及同郡夏目村夏目ニ於テハ本層中ニ不規則形ヲナセル石灰質結核アリテ層面ニ平行ニ排列セラレ各個ノ大サ十糎乃至三十五糎ナリトス、介殻化石ハ本層ノ基底ヨリ約六十米上位ニ存ス、其ノ産地及化石名左ノ如シ

香取郡豐里村諸持

Genotia ogurana Yok.
Turritella nipponica Yok.
Natica sp.
Turbonilla sp.
Raeta pulchella Ad. et Rve.
Solen krusensterni Schr.
Macoma dissimilis Mart.

Protothaca staminea Sow.
Cardium sp.
Venericardia ferruginea Ad.
Leda gordonis Yok.
Nucula sp.

香取郡東城村夏目

Chrysodomus arthriticus (Val.)
Turritella nipponica Yok.
Natica janthostoma Desh.
Dentalium weinkauffi Lam.
Raeta pulchella Ad. et Rve.
Macoma dissimilis Mart.
Leda gordonis Yok.

構造　凝灰質頁岩層ハ銚子圖幅地ニ於テ中新統ヲ不整合ニ掩ヘル凝灰質砂岩層上ニ整合ニ累重スルモノニシテ本圖幅地ニ於テハ其上部ヲ露ハシ砂質トナリ以テ漸次上位ノ凝灰質

砂層ニ移過シ兩層共ニ下部更新統ニヨリテ不整合ニ掩ハル。凝灰質頁岩層ハ走向北四十五度乃至六十度東ニシテ傾斜北西ニ二度乃至三度ナリ。凝灰質砂層ハ一般ニ殆ト水平ニ近ク極メテ僅カニ北々西方ニ傾斜セルモ圖幅地南東部ニ於テ凝灰質頁岩層ニ接スル附近ニ於テハ該岩層ト同樣ナル走向及傾斜ヲ有セリ

凝灰質頁岩層ノ厚サヲ海上郡船木村船木臺、香取郡豐里村東笹本間ニ於テ測定セルニ約百五十米アリ。凝灰質砂層ノ厚サハ成層面明瞭ナラサルヲ以テ之ヲ詳カニスル能ハサルモ三百米乃至六百米ノ間ニ在リテ略四百米ト推測セラル

圖幅地内ノ鮮新統ノ化石及成層狀態ニ徵スルニ本層ハ横山博士ノ命名ニ係ル下部武藏野統ノ上部ニ該當シ鮮新期上部ニ屬ス

二　下部更新統

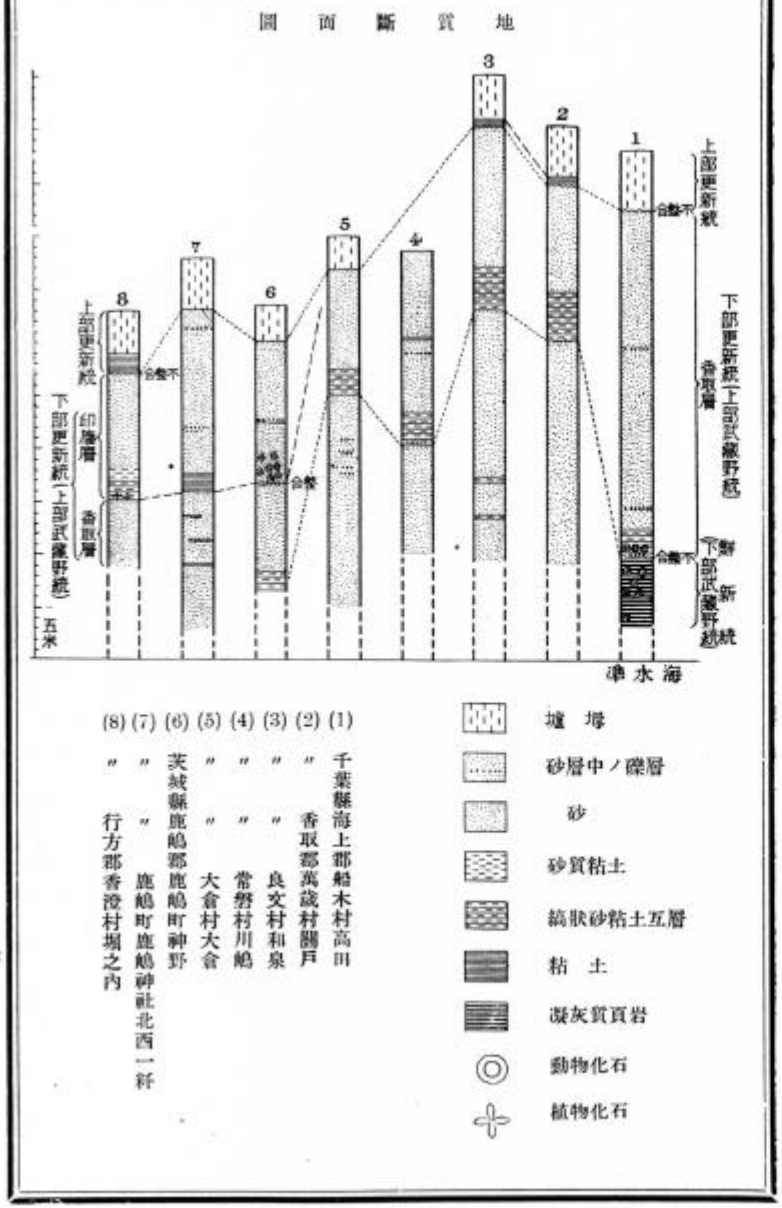
下部更新統ハ互ニ整合ナル二層ニ區分セラレ其下部ヲ香取層、上部ヲ印旛層ト命名セリ。本統ハ横山博士ノ所謂松崎化石動物群ヲ含メル上部武藏野統ニ屬スルモノニシテ其ノ時代ハ上部鮮新期或ハ下部更新期トスル二説アルモ玆ニハ下部更新統ト看做シテ處理セリ

(一) 香取層

本層ハ全厚十三米ヨリ三十米以上ニ達シ主トシテ砂層ヨリ成リ、基底部ノ一五米乃至三五米ノ間ニ於テハ砂ト薄ク互層セル粘土層ヲ含メル外、其上ノ砂層中ニ厚サ三十糎以下ノ薄キ粘土層ヲ挟有スルコトアリ、又本層ノ基底部ニハ薄層ヲ成セル礫層ノ存スルコトアリ、尚ホ礫層ハ圖幅地東部及東北部ニ於ケル砂層中ニ發達シ又西部ノ香取郡香取神社近傍ニモ發見セラルヽモ概ネ扁桃狀又ハ薄層ニシテ其ノ厚サ二十五糎以下ナリ

砂 灰色、黃灰色又ハ黃褐色ヲ呈シ濕潤ナルモノハ青灰色ヲ呈スルコトアリ、概ネ中粒ニシテ時ニ粗粒ナレトモ本層ノ下部ニ於テハ細粒ナルコトアリ、概ネ大サ〇、五粍乃至二粍ノ石英、長石、蛇紋巖石、單斜輝石、角閃石、磁鐵鑛、安山岩石基等ノ圓粒又ハ角粒ヨリ成リ粘土質物及玻璃ノ破片ヲ含ミ往々大サ一糎乃至二糎ノ角岩、粘板岩、安山岩等ノ礫ヲ混有ス、偽層ヲ呈スルコト多シ、本層ノ最上部ニ於ケル砂ハ屢々固ク膠結セラレ砂岩トナレルモノアリ、該岩ハ圖幅地西邊ノ中部ニ於テ其發達著シ

粘土 黃色、黃灰色、灰色、綠灰色又ハ青灰色ヲ呈シ雲母ノ鱗片ヲ含ミ往々硬質ニシテ頁岩ニ類スルモノアリ



礫　大サ通常二糎乃至三糎ニシテ稀ニ七糎ニ達スル圓形又ハ扁圓形ヲ成シ主トシテ硅岩、角岩、粘板岩及脈石英ヨリ成リ稀ニ雲母片岩、安山岩等ヲ混有ス

化石　本層中ノ化石ハ海上郡船木村高田ニ於テ本層ノ基底ヲナセル砂、粘土互層中ニ發見セリ、化石名左ノ如シ

Ringicula musashinoensis Yok.
Cancellaria nodulifera Sow.
Chrysodomus arthriticus (Val.)
Chrysodomus schrencki Yok.
Dolium luteostomum Küst.
Natica janthostoma Desh.
Polinices ampla (Phil.)
Odostomia spp.
Umbonium costatum Val.
Corbula venusta Gld.
Mactra sulcataria Desh.

Mactra dunkeri Yok.
Spisula grayana (Schr.)
Raeta yokohamensis Pils.
Tresus nuttalli Conr.
Solen krusensterni Schr.
Siliqua pulchella Dkr.
Tellina nitidula Dkr.
Macoma nipponica (Tok.)
Macoma dissimilis Mart.
Macoma sp.
Dosinia troscheli Lke.
Venus stimpsoni Gld.
Protothaca staminea Sow.
Saxidomus purpuratus Sow.
Cardium californiense Desh.

Diplodonta ustæ Gld.
Lucina borealis L.
Venericardia ferruginea Ad.
Venericardia tokyoensis Yok.
Mytilora fluctuosa Gld.
Anomia spp.
Pecten laetus Gld.
Pecten irregularis Sow.
Pecten tokyoensis Tok.
Pecten laqueatus Sow.
Ostrea plicata Chem.
Arca inflata Rve.
Glycimeris vestita Dkr.
Glycimeris yessoensis Pils.
Parallelodon obliquatus Yok.

Yoldia notabilis Yok.

尚ホ香取郡古城村宿木ニ於テ砂、粘土互層ノ直上ノ砂中ニ介殻ノ破片ヲ産ス

構造　本層ハ下部更新統ノ下部ヲ構成シ鮮新統トハ交斜不整合ヲナシ後者ノ凝灰質砂層及凝灰質頁岩層ヲ掩ヒ下部更新統上部タル印旛層ニ整合ニ掩ハル、本層ハ殆ト水平ナルモ極メテ僅カニ北西方ニ傾キ層厚不定ニシテ概シテ東部ニ於テ厚ク海上郡椎柴村附近ニ於テハ三十米以上、香取郡森山村附近ニ於テハ二十五米以上、行方郡潮來町附近ニ於テハ約二十米、香取郡佐原町附近及同郡久賀村附近ニ於テハ約十三、四米ヲ算ス

(二)　印旛層

本層ハ最厚二十米ニ達シ主トシテ砂層ヨリ成リ之ニ屢々厚サ二米以下ノ粘土層ヲ挟ミ稀ニ礫ノ薄層ヲ挟ム、本層ノ基底ハ殆ト常ニ粘土層或ハ砂質粘土層ニシテ之ヲ以テ香取層ト界ス

砂　黄色乃至黄褐色ヲ呈シ概ネ中粒ニシテ屢々僞層ヲ呈スルモ時ニ極メテ細粒ニシテ稍粘土質ヲ帶フ、主トシテ大サ〇五粍乃至一粍ノ石英、長石、紫蘇輝石、單斜輝石、角閃石、磁鐵鑛等ノ圓粒又ハ破片ヨリ成リ硅岩、角岩、粘板岩等ノ小圓礫ヲ含ム

粘土　黄灰色、綠灰色、青灰色又ハ淡褐色ヲ呈シ往々砂質ヲ帶ヒ且多クノ砂管ヲ含ムコトアリ

礫　大サ二糎以下ノ硅岩、角岩、砂岩、粘板岩、石英斑岩、安山岩等ノ圓礫ナリ

構造　本層ノ基底ハ殆ト常ニ粘土層又ハ粘土質砂層ヨリ成リ以テ香取層ヲ整合ニ掩フ、該粘土中ニハ往々單子葉植物ノ葉及莖、胡桃實等ヲ含ミ尚ソノ粘土ヲ掩ヘル砂中ニ介殼化石ヲ產スルコトアルモ概ネ印象ナリ

本層ハ殆ト水平ナルモ極メテ微ニ西北西方ニ傾斜シ圖幅地北邊ニ於テ最モ厚ク露出シ其ノ厚サ約二十米ニ達セリ

三　上部更新統

本統ハ主トシテ**壜堺層**ヨリ成リ其ノ下ニ粘土層及時ニ砂層ヲ伴ヒ共ニ臺地ノ上部ヲ構成シ全厚四米乃至五米ヲ算ス

粘土　白色乃至灰白色ヲ呈シ柔軟ナリ

砂　褐色ヲ呈シ中粒乃至粗粒ニシテ大サ概ネ二粍内外ノ石英、長石、頑石、磁鐵鑛、硅岩、角岩、砂岩、粘板岩、安山岩等ノ圓粒又ハ破片ヨリ成リ、屢々大サ二糎以下ノ礫ヲ含ミ、偽層ヲ呈セリ

壜堺　褐色ヲ呈シ、上表部ノ腐植セル部分ハ黑色ニ變セリ

構造　本統ハ水平ニ成層シ一般ニ上部三・五米乃至四・五米ハ壜堺層、下部〇・三米乃至一・二米ハ粘土層ヨリ成リ、下部更新統ヲ不整合ニ掩ヒ臺地ノ上部ヲ構成セリ、壜堺層ト粘土層トハ概ネ整合ナルモ圖幅地北部ニ於テ行方郡大生原村大賀、同郡津知村築地及同郡潮來町潮來ヲ結フ線ヨリ東方、圖幅地南部ニ於テ香取郡橘村羽許及同郡東城村小南ヲ結フ線ヨリ東方ニ於テハ粘土層ヲ缺キ壜堺層カ下部更新統ニ直接セリ、壜堺層ハ基盤ノ起伏ニ從ヒ低地ニ向ヒテ斜下セル處アリ、砂層ハ圖幅地南西部ニ於テ斯ル壜堺層ノ下ニ露ハレ壜堺層ト直接ニ整合シ粘土層ヲ缺キ、厚サ二米內外ナリ、粘土層ハ右ノ各地以外ニ於テハ常ニ壜堺層ニ隨伴セルト、其ノ厚サ小ナルトヲ以テ別ニ圖上ニ色別ヲ設ケス

四　現世統

(一)　砂

砂ハ海岸ノ沙丘及沙洲ヲ構成セリ、沙丘ノ最高點ハ三七・九米ニ達シ圖幅地北部ニ於テハ臺

地ノ壇場ノ上ヲ掩ヘル處アリテ砂ノ厚サ一米乃至二米アリ利根川河口附近ノ沙洲ニ於テハ砂ハ礫ヲ交ヘ是ヨリ香取郡小見川町附近迄及ヘリ沙洲ノ高サハ三米乃至十一米アリ

(二) 冲積層

沿海平地及河岸ノ低平地ヲ構成シ砂礫及粘土ヨリ成ル

第二章 應用地質

一 砂利

砂利ハ鹿嶋郡息栖村、輕野村及若松村ニ於テ現世統中沙洲ヲナセル砂ニ含マレタルモノ鐵道「バラスト」用トシテ採掘セラル、年產五千坪內外ニシテ價格ハ篩分ケセサルモノニテ坪當リ金十四圓乃至十七圓ナリトス

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EXPLANATORY TEXT

OF THE

GEOLOGICAL MAP OF JAPAN

Scale 1 : 75,000

KASHIMA

Zone 23 Col. III

Sheet 104

By

Tomofusa Mitsuchi

GEOLOGY

Pliocene is divisible into two beds; namely, tufaceous shale and tufaceous sand. The former is conformably covered by the latter, while it is also conformably underlaid by the tufaceous sandstone in the neighbouring Chōshi sheet map area. The tufaceous shale is sandy and greenish gray, and contains fossils of marine mollusca. Its thickness reaches about 150 m. in the area. The tufaceous sand is usually very fine-grained and greenish gray or yellowish gray and also encloses some marine molluscan fossils. Its thickness is 400 m. or more. These strata strike from northeast to southwest or from east-north-east to west-south-west, and dip to northwest at angles of 2°–3° at the southeastern part of the area, while

in the remaining part, where no shale is found, the sand bed lies almost horizontally, rarely retaining a northwestward inclination.

Lower Pleistocene is here subdivided into two beds: the lower, the Katori Beds and the upper, the Imba Beds.

Katori Beds are made up chiefly of sand which intercalates thin layers of clay and gravel. The sand is generally medium-grained, and gray, yellowish gray or yellowish brown, and false-bedded in places. The clay is usually greenish gray in colour, and finely alternated with sand, and occurs at the base of the Katori Beds, covering unconformably the underlying Pliocene Series. Marine molluscan fossils are found in this alternation at two localities. The thickness of the Katori Beds is measured 13–14 m. near the western border of the area, and gradually increasing eastward, it exceeds 30 m. in the southeastern part of the area. The strata lie nearly horizontally with almost imperceptible dip to west-north-west.

Imba Beds are composed of sand, clay and gravel. The sand is usually brownish yellow in colour and its granularity is various. The clay is dark gray, greenish gray or yellow, and contains abundant sand pipes. It occurs as intercalations in the sand and also, lying at the base of the Imba Beds, rests conformably upon the Katori Beds. The Beds are almost horizontal or slightly inclined toward northwest, and attain a thickness of 20 m. in the northeastern part of the mapped area.

Upper Pleistocene is chiefly composed of clay and

loam, and always constitutes the uppermost portions of the table lands. The clay, less than 1.2 m. in thickness, unconformably covers the Lower Pleistocene Series and is conformably overlain by the loam. In the eastern part of the mapped area, no clay bed is found and the loam lies directly upon the Lower Pleistocene formation, while in the southwestern the loam is found drooping down the northern slopes of the table land where it often grades downwards into the Upper Pleistocene false-bedded sand. The thickness of the loam is from 3.5 to 4.5 m.

Recent sand forms dunes along the sea-shore and bars near the mouth of the River Tone. Sand, gravel and clay form alluvial plains.

ECONOMIC GEOLOGY

Gravel is dug for ballast from the Recent deposit at Ikisu-mura, Karuno-mura and Wakamatsu-mura in Kashima-gun.