昭和十一年八月

糸魚川地質調査所

地質調査所

地質調査所

地質調査所
第二章 應用地質

自三二頁至三一頁
石灰岩層

海石膏岩層は北部に分布し、東京都海中南部に細長く分布する。東京湾の海中南部に分布する石灰岩層は、海底に形成されたものである。

石灰岩層は、白亜系のため粘性が強いため、水圧が高くなると溶けにくくなる。

化石

本石灰岩層には、多種の化石が含まれている。詳細な化石類の記載については、次の文献を参照すること。

文献

中川、岩本、古川 (1985) 地質学, 東京大学出版局.
頁岩中に多少混入する砂岩又は砂屑層が有り又は変成したシタイプの石灰岩に変成されている。

(二) 中越統

1. 飛騨岩など
2. 飛騨岩など
3. 飛騨岩など

(三) 飛騨岩

1. 飛騨岩など
2. 飛騨岩など
3. 飛騨岩など
四、兩雲母花崗岩

本岩為黑雲母花崗岩，其主要成分包括石英、黑雲母、長石及輝石等。根據岩石組成的不同，可以分為多種類型。

五、黑雲母花崗岩

本岩為黑雲母花崗岩，其主要成分包括石英、黑雲母、長石及輝石等。根據岩石組成的不同，可以分為多種類型。
八蛇紋岩

岩石
灰色白色灰色青灰色

主成分
石英長石石英長石

類型
外生岩類

結晶
長石

顔色
灰色白色灰色

八蛇紋岩

岩石
灰色白色灰色

主成分
石英長石石英長石

類型
外生岩類

結晶
長石

顔色
灰色白色灰色
（一） 今井村水神附近ノマノ

岩石

（二） 今井村頭山附近ノマノ

岩石

（三） 今井村カタツク対西方ノマノ

岩石

十一、角関安山岩及集塊岩

集塊岩ハ前記ノ同質ノ岩塊ノ褐色ハ至暗褐色ノ安山岩質凝灰質物ノナリ繁殖セラル関係

（一） 今井村水神附近ノマノ

岩石

（二） 今井村頭山附近ノマノ

岩石

（三） 今井村カタツク対西方ノマノ

岩石
十五、玄武岩

本岩産に於ては、玄武岩の生成が確認されている。

十六、浮石

浮石は玄武岩の生成時に生じる副産物である。

十七、火成岩相互関係

火成岩の相互関係は、生成条件や形成過程により異なる。

注：詳細な説明は、別のページに記載されている。
**GEOLOGY**

The Permo-Carboniferous system is composed essentially of clayslate, sandstone, and limestone, accompanying schalstein, hornfels, quartzite, and hornstone. The system is distributed in the west of the river Himekawa and may be divided into two groups; namely, the one is a complex composed of clayslate and sandstone accompanying hornfels, quartzite, and hornstone; the other is thick beds of fossiliferous limestone with schalstein. They are separated from one another by faults. The thickness of the former is estimated at about 2,000 metres. The limestone is grey or dark-greyish coloured, generally massive and contains...
abundant fossils comprising many species of Fusulina. The estimated thickness of the limestone is more than 1,500 metres.

Tertiary is widely developed forming hilly tracts to the east of the river Himakawa and is divided into five beds in ascending order as tabulated below:

- Conglomerate beds
- Kubiki series: Sandy Shale beds
  - Conglomerate, Sandstone and Shale beds
- Chüetsu series: Conglomeratic Sandstone beds
  - Conglomerate

Conglomerate beds overlie the serpentine at the southwestern part of the sheet map area. The beds seem to form the basal member of a distinct series probably older than the Kubiki, and consist mainly of the alternations of conglomerate and sandstone accompanying conglomeratic sandstone.

Kubiki series consists mainly of dark bluish grey to grey sandy shale intercalating thin layers of sand and grading frequently into shaly sandstone. The shale weathers readily into greyish brown sandy clay on exposure. It contains fossil mollusca such as Thyasira bisecta, Chryseodonus sp., Cardium muttial, Solemya labiosa and etc.

Chüetsu series overlies unconformably the Kubiki series. In the mountains, south of the river Hayakawa, the Chüetsu series consists mainly of agglomerate, containing conglomeratic sandstone in the upper part and accompanies flows of basalt at its base. In the environs of Uramoto-mura to the north of the river Hayakawa, however, the Chüetsu series is represented by conglomerate beds, alternated with sandstone and shale in places. The thickness of the series calculated at Kuzure is about 500 to 600 metres.

Structure of the Tertiary. In exposures the Tertiary beds are so much disturbed by landslides, especially in the region occupied by the Kubiki sandy shale, that it is difficult to work out its structure in detail. But the Chüetsu series is generally less disturbed as compared with the Kubiki series. The Chüetsu series in the environs of Kuzure, Uramoto-mura runs N 50°-60° E and dips at angles of 12° to 15° to northeast, thus forming a monoclinal structure. But in the west of this region, a synclinal axis runs NNW, the limbs dipping at angles of 14°-18°.

Pleistocene is distributed mainly along the margins of hills in Ōmi-machi, Imai-mura, Itoigawa-machi and Yamatogawa-mura and forms coastal or river terraces. It is composed of greyish brown loamy clay, gravel and sand.

Recent (a) Talus deposit is present at Tanné, Shimo-hayakawa-mura, and consists of blocks of andesitic agglomerate. It may have been deposited as rock avalanche mixed with mud by landslides from highlands to the south behind.
(b) Clay, Sand and Gravel beds constitute alluvial plains along the rivers and sea coast.

(c) Sand. Wind-blown sand forms dunes on the sea coast.

Granites are classified into Two-mica-granite and Biotite-granite. They are comagmatic derivatives and pass into one another by a gradual transition. They occur as a stock intruding the Palaeozoic strata which are metamorphosed into hornfels at their contact.

Diorite occurs as a stock intruding the Palaeozoic strata in the northwest of the river Ōmi-gawa. It is dark green to dark greyish green in colour and fine grained and has some resemblance to diabase, at a glance.

Aplit occurs as small dikes in the biotite-granite along the coast of Koshirazu. It is white to greyish white in colour and fine grained and equigranular in texture.

Serpentine occupies a small area to the southwest of the river Utagawa and is overlaid by the Conglomerate beds of the Tertiary. It is dark green to yellowish green in colour and generally massive.

Perphyrite occurs as small dikes in the Palaeozoic rocks. It is light greyish green to light green in colour and has some resemblance to diorite, at a glance.

Liparite overlies the Palaeozoic rocks. It is ash-grey to light greyish brown in colour and easily weathers and becomes light yellow to greyish brown.

Hornblende-andesite and its agglomerate overlie the Kubiki series and are widely extended, forming steep ridges in the mountains to the north of the river Hayakawa, hence one can easily distinguish topographically the boundaries between igneous and sedimentary regions.

Andesite agglomerate occurs as lava flows in the Kubiki shale near No. It is dark green to black in colour and consists mainly of subangular blocks of pyroxene andesite cemented by tuffaceous material.

Olivine bearing augite-andesite occurs along the provincial road near Mizusaki, south of Itoigawa underlying the Pleistocene gravel. It is dark grey to black in colour and has many amygdaloidal cavities with zeolite.

Basalt is dark grey in colour and coarse grained in texture. It forms the base of the Chisetsu series and covers unconformably the Kubiki beds.

Pumice forms the Nakayama terrace along the river Hayakawa and seems to have flowed from Volcano Yaké as a pumice flow.

ECONOMIC GEOLOGY

Copper Ore has been once prospected at a valley southwest of Tsumuriyama in Imai-mura. The deposit seems to be a cupferous quartz-vein containing chalcopyrite, pyrite, and secondary bornite.
Petroleum and Natural Gas are found in the following several localities. At Waniguchi in Ōno-mura south of Itoigawa, a petroleum gas is issuing from the Kubiki shale which is covered by the Pleistocene gravel. The shale beds are suspected to form a small antecil fold and a well is being drilled by the Nippon Oil Company. At Ikahara in Shimo-hayakawa-mura, an oil seepage accompanying gas is present in the region of the Kubiki shale. Here recently, the same company began another well on the Kazusa system to test the area. Other natural gases were noticed formerly at Fukihara, Kami-hayakawa-mura, Koidesawa, Yamatogawa-mura and Rentaiji, Itoigawa-machi.

Limestone is being extensively quarried for the materials of burning lime, calcium carbide, calcium cyanamide and ammonium sulphate at several places in the environs of Uta, Utatonami-mura and south of Omi-machi.

Building Stone. Granite of greyish colour and medium grained texture exposed on the Koshirazu cliff near Uta was once quarried for local demand.

Potter's clay. At Tabusé in Yamatogawa-mura, a greyish to reddish formerly loamy clay embedded in the Pleistocene deposit was used formerly by brick makers.

Natural Cement. Powdered pumice extracted from the terrace southeast of Otosaka in Kami-hayakawa-mura has been tested as natural cement but unsuccessful.

Fuller's Earth occurs at several places of mountain slopes in Imai-mura as a decomposed product of the liparite under the covering of soil about 1 metre thick. It is mostly light yellowish coloured and within 2 to 4 metres fading pale yellowish green to light grey ones that grading into unaltered liparite further downwards. The selected material is used mainly for decolorisation and dehydration of oils and is exported for Manchoukuo, China, the South Sea Islands, Australia and etc.