第2図 兵庫県宍粟郡一宮町千町周辺地質図
(弘原海, 清水, 1962)

凡 例 1. 化石産地, 2, 3. 上部三畳系千町層 (2. 頁岩, 3. 砂岩礫質砂岩), 4. 石英粗面岩類, 5. 古生層(おもに粘板岩), 6. 夜久野岩類

ensis (SAEKI), *Palaeopharus maizurensis* KOBAYASHI et ICHIKAWA, *Cardinia triadica* KOBAYASHI et ICHIKAWA. 化石種から本層は上部三畳系・カーニアン(佐川期前亜期)であり, 岩相・化石から難波江層群 N₂ 層に対比される。本層の厚さは砂岩層がほぼ 380 m, 上下の頁岩層がそれぞれ 20~30 m である。上下両端は断層で古生層と夜久野岩類に接する。

本層を千町層とよぶことにする。

2. 古生層は黒色粘板岩で, やや千板岩質の部分もある。北方の谷の転石には砂岩・石灰岩もあるが, 化石はなく時代は不明である。岩相からみて舞鶴層群の中部層か, 夜久野地区の千原層(二畳系?)に対比される可能性がある。古生層が夜久野岩類と接する部分にはいくらかの珪化帯が形成され, また多くの珪質の岩脈が層面にそって入っており, 夜久野岩類が貫入したと解される。

Mitsuo HASHIMOTO*: Rhodonite from the Konoha metamorphic terrane, Kyushu

During the field work on the Konoha metamorphic rocks, Kyushu, M. FUJIMOTO and I collected a piece of rock which consists exclusively of rhodonite. In this short paper I intend to describe the results of chemical and physical studies on the rhodonite. Such a description may be of use to discuss the stability

3. 夜久野岩類は細ないし粗粒の角閃石斑縞岩からなる。これは全般的に片状構造が明瞭で, その片状構造に concordant にまたは dis cordant に脈岩様の trondjemite がみられる。

そのほか, 片状構造の著しい角閃岩があるが, 角閃石斑縞岩との直接的関係は野外では観察されない。

4. これらの基盤岩類を不整合におおつて石英粗面岩質の火砕岩が, ほぼ水平に重なる(厚さ約 400m 以上)。最下部に淘汰のわるい泥質堆積物を伴うことがある。

5. 難波江層群は舞鶴地帯のなかで古生層地帯の南はしに分布するのがふつうであるが, この千町層は夜久野岩類のなかに断層関係ではさみこまれている。夜久野岩類が古生層にのみ貫入していること, 古生層・夜久野岩類の走向と三畳系の走向が斜交していることなどを考えると, 千町層は夜久野岩類の貫入と古生層の変形後に両者の上に堆積したものと推定することができる。
(1962, 12, 15)

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of manganese silicates, because the data are scarce on rhodonite which occurs in the regional metamorphic terrane where the metamorphic conditions are fairly well known.

As described in the previous paper (HASHIMOTO and FUJIMOTO, 1962), various kinds of metamorphic rocks, which are collectively called the Konoha metamorphic complex, make the basement in a small area (latitude 32°55'—33°0' N, longitude 130°35'—130°40') about 18 km NW of Kumamoto, Kyushu. The complex consists dominantly of pelitic and psammitic metamor-

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phic rocks (mica schist and gneiss) with minor amounts of quartzite, amphibolite and calcic rock. The mineralogy and petrology of the Konoha metamorphic complex indicate that the rocks were regionally metamorphosed under the physical conditions of the amphibolite facies. Furthermore the nature of metamorphism has a strong resemblance to that of the central Abukuma plateau (MIYASHIRO, 1958; SHIDO, 1958).

Based on the mineralogy of pelitic rocks, the Konoha metamorphic terrane is divided into two metamorphic zones: zones of lower and of higher metamorphic grades. In the higher zone potassium feldspar and cordierite co-exist stably in pelitic rocks. On the other hand they do not occur in the lower zone. The locality at which the rhodonite rock was collected is in the area of the lower grade zone, although the mode of occurrence is not clear, because the rock was obtained from a pile of debris of an abandoned mine.

The rock under consideration is a pink massive aggregate of fine-grained crystals. Prismatic cleavages of the crystals are observed with a hand-lens. Along the cracks the rock is altered to the black manganese oxide. Under the microscope the rock consists exclusively of rhodonite. The optical properties of the mineral are as follows. $\alpha=1.722$, $\gamma=1.737$, $\gamma-\alpha=0.015$; $2V$ over $Z=66^\circ$; colorless in thin section. These are in agreement with the generally reported properties of the mineral rhodonite.

A part of the rock entirely free from the black alteration product was chemically analy-

Table 1. Rhodonite from Urata, Gyokutomura, Tamana-gun, Kumamoto Prefecture. Analyst: K. ISONO.

Wt. %		Atomic ratios for O=3	
SiO ₂	46.34	Si	0.990
Al ₂ O ₃	0.62	Al	{0.010 } 1.000
			{0.006 }
FeO	1.70	Fe''	0.030
MnO	44.96	Mn	0.813
MgO	1.03	Mg	0.033
CaO	5.29	Ca	0.121
H ₂ O+	0.16		
Total	100.10		

Formula: (Mn, Fe'', Mg, Ca, Al)_{1.003}(Si, Al)O₃

sed. The result is shown in Table 1 with the atomic ratios calculated on the basis of O=3. The formula derived therefrom shows good agreement with the proposed formula of rhodonite, (Mn, Fe, Ca)SiO₃ (DEER *et al.*, 1963).

For confirmation an X-ray powder diffraction pattern of the mineral was taken by means of the Geiger-counter X-ray diffractometer, using the Ni-filtered CuK α radiation. The pattern obtained is shown in Table 2. It is not of pyroxmangite, but of rhodonite (see SAKURAI, NAGASHIMA and TAKASU, 1956).

Table 2. X-ray powder diffraction pattern of rhodonite CuK α ₁; $\lambda=1.54050\text{\AA}$.

2 θ for Cu ($^\circ$)	d ($\text{\AA}$)	I	2 θ for Cu ($^\circ$)	d ($\text{\AA}$)	I
12.55	7.047	6	30.70	2.910	2
13.40	6.602	3	31.20	2.864	2
24.95	3.566	10	34.45	2.601	5
26.65	3.342	8	35.70	2.513	2
28.40	3.140	2	36.60	2.453	1
28.85	3.092	3	37.85	2.375	3
30.05	2.971	3	39.50	2.279	1
30.50	2.928	2			

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