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Title	Liesegang Texture Found in Pyrophyllite Ore Deposits, Shobara district, Southwest Japan: Photograph collection
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Liesegang Texture Found in Pyrophyllite Ore Deposits, Shobara district, Southwest Japan

—Photograph collection—

By

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and Setsuo TAKENO

with 32 figures

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ABSTRACT: Liesegang textures are commonly occurred in pyrophyllite ore deposits in Shobara district, Southwest Japan. Color photographs of mode of occurrence, hand specimens and characteristic microtextures are presented. At the Sankin-motoyama outcrop, Liesegang texture is developed more than 500m long along the strike direction of the host rhyolitic rocks. The Liesegang texture is developed in the pyrophyllite rich zone and the texture is characterized by alternate of light and deep color bands. The light color is white to grey and the deep color is rather various such as brown, purple and grey. Two types of bands are recognizable, one is parallel and the other is perpendicular to the bedding plane of host rhyolitic rocks, respectively. The former is found in the marginal part whereas the latter mainly in the central part. Cylindrical Liesegang ring whose size is in the range from 10 to 50 cm is also common. The shape of the central core is various such as sphere, ellipsoid and cube. The band width of the Liesegang texture is various from few millimeters to several tens centimeters.

Under the microscope, double or triple hematite rings are commonly observed in the deep color part and towards the light color part, shape of the rings becomes more and more irregular. The boundary of light and deep color bands is clearly recognized under the microscope by sudden development of opaque minerals in the deep color part and the boundary is irregular compared with straight appearance observed in the out crop.

Detailed description of the texture will be appeared elsewhere.

Explanation of Figures.

Fig. 1. Outcrop of Motoyama ore deposit of Sankin Co.Ltd. In this outcrop, Liesegang texture is most extensively developed in the Shobara district. Parallel bands running from upper left to lower right are equivalent to the bedding plane (flow structure) of the host rhyolitic rocks.

Liesegang textures are developed more than 500m long along the strike direction (N60E30S) of the bedding plane.

Fig. 2. Liesegang bands developed almost parallel to the bedding plane of the host rhyolitic rocks.

- Fig. 3. The bands are almost parallel to the bedding plane of the host rhyolitic rocks. Such occurrence is recognized mainly near the marginal part of the outcrop. (A part of Fig.2)
- Fig. 4. Liesegang ring developed in the direction perpendicular to the bedding plane of the host rock. Such occurrence is mainly recognized in the central part of the outcrop. Steps in the photograph are parallel to the bedding plane.
- Fig. 5. Cylindrical Liesegang rings. Near the central cores, spherulitic textures are observed. Note that color of the central core is not restricted to deep (dark) or light (whitish) color.
- Fig. 6. Cylindrical Liesegang rings with central core of light (whitish) color. Shapes of the central core are rather various.
- Fig. 7. Straight bands with deep color are often accompanied with thick light color bands.
- Fig. 8. Straight bands accompanied with a thick light color band. Liesegang texture of the district is consistently composed of alternate of two distinctly different color, light (whitish) and deep color bands.
- Fig. 9. Liesegang ring of cylindrical form with a thick central core of light color. Note that the shape of the central core is not spherical and such form of the central core is common.
- Fig.10. Cylindrical Liesegang ring with shape of rather spherical form. This specimen is characterized by thick width of deep color bands(cf.Fig.11 in which thick light color bands are characteristic).
- Fig.11. Liesegang ring characterized by thick width of light color bands.
- Fig.12. Liesegang ring with deep color central core. Central core with deep color is rather rare compared with light color core.
- Fig.13. Liesegang ring with light color core. Alternate of deep and light color is clearly recognizable.
- Fig.14. Liesegang ring weathered extensively. The reddish to brownish color is attributed to iron oxides produced by recent weathering.
- Fig.15. Various forms of Liesegang texture: The size of Liesegang ring found in the district is mainly in the range between about 10 and 50cm in diameter. The band width is various from few millimeters to several tens centimeters.
- Fig.16. Parallel alternate bands. The deep color is varied from dark grey to purple, reddish brown and grey. Spherulitic texture is remarkable.
- Fig.17. Parallel Liesegang texture composed of alternate bands of whitish (light) and dark (deep) color. Scale bar is 5cm.
- Fig.18. Liesegang texture with vivid red to purple color. The lower part of the specimen is spherulitic. Scale bar is 5cm.
- Fig.19. Liesegang texture with waving bands like those of colloform texture.
- Fig.20. Liesegang ring with deep color central core. Note that from the outer part to the central core, the shape becomes more and more spherical.
- Fig.21. Liesegang ring with almost cube form of central core. Difference of the alternate color is rather obscure in part.
- Fig.22. Spherical Liesegang ring with light color central core. Such symmetrical texture is rather rare.
- Fig.23. Liesegang ring with light color central core. Such ellipsoidal form is common.
- Fig.24. Cylindrical Liesegang texture with deep color core. The shape of the central core

is almost sphere and such spherical core is very rare. This sample is characterized by thick light color bands. Scale bar is 5cm.

Fig.25. Microphotograph showing the boundary between the light and deep color bands. The boundary is clearly recognizable by concentration of opaque minerals (mostly hematite) in the deep color part. (left is crossed nicols and right is open nicols)

Fig.26. Ditto. Note that the boundary between light and deep color parts is quite irregular. Upper right part is deep color band.

Fig.27. Photomicrograph showing hematite rings. The hematite rings are found in the deep color bands and towards the light color bands shape of the rings become more and more irregular (open nicols).

Fig.28. Double hematite ring is common in the deep color bands and often replaced partly by quartz.

Fig.29. Double hematite ring. This size of double ring is rather common. (characteristic X-ray:FeK α).

Fig.30. Various form of hematite. Left hand side is towards the light color bands and the ring becomes more and more irregular towards light color part.

Fig.31. Irregular form of hematite found near the boundary between light and deep color bands.

Fig.32. Ditto.

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Fig. 1 .



Fig. 2 .

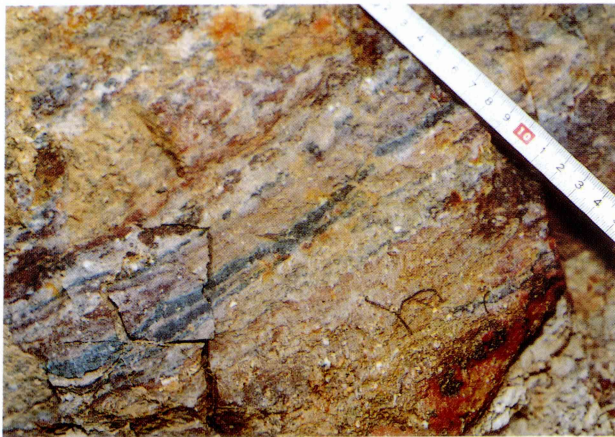


Fig. 3 .



Fig. 4 .



Fig. 5 .



Fig. 6 .



Fig. 7 .



Fig. 8 .



Fig. 9 .



Fig. 10 .



Fig. 11 .



Fig.12 .

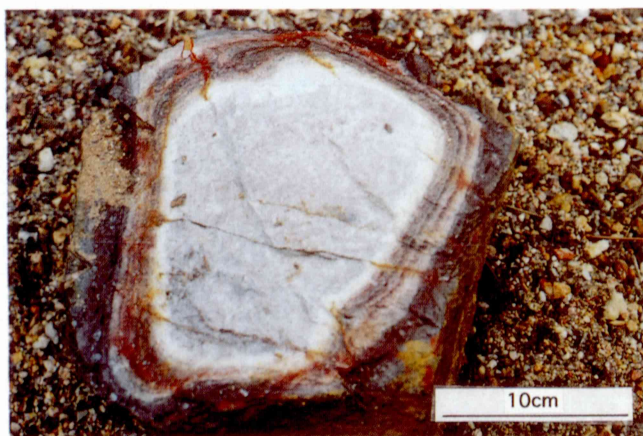


Fig. 13 .



Fig. 14 .



Fig. 15 .



Fig. 16 .



Fig. 17 .



Fig. 18 .

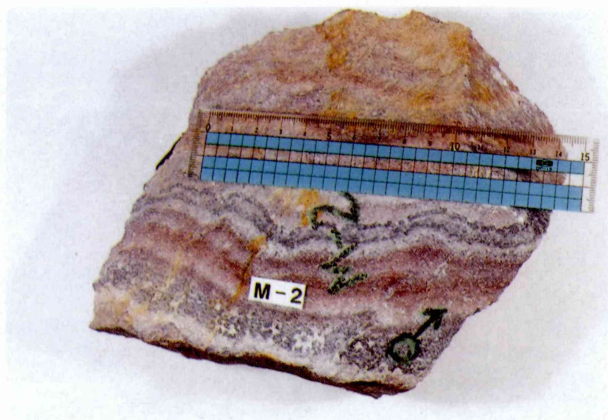


Fig. 19 .



Fig. 20 .



Fig. 21 .

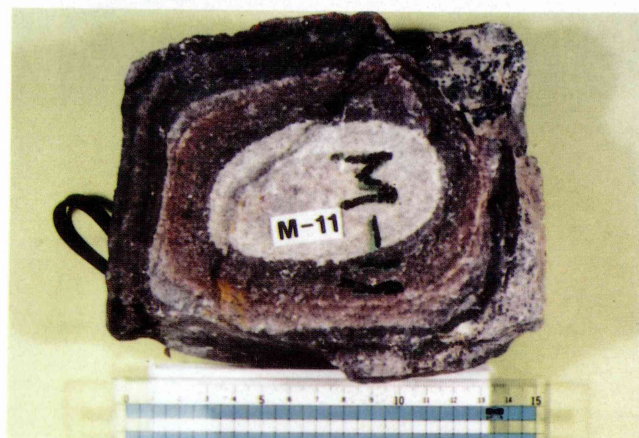


Fig. 22 .

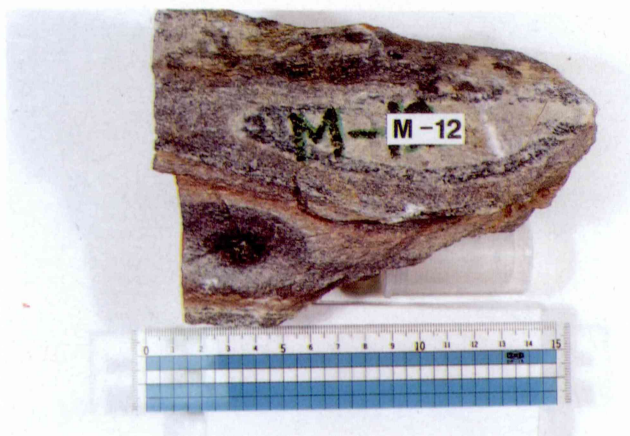


Fig. 23 .



Fig. 24 .

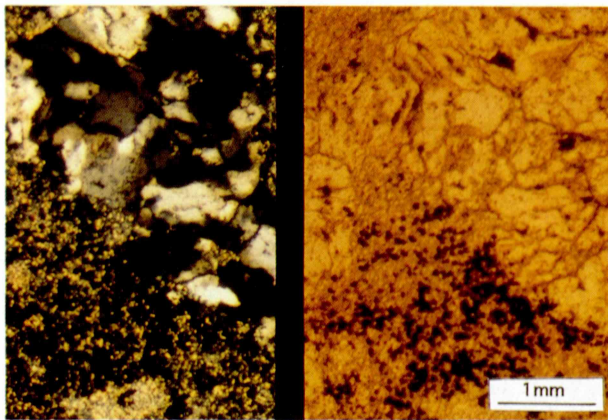


Fig. 25 .

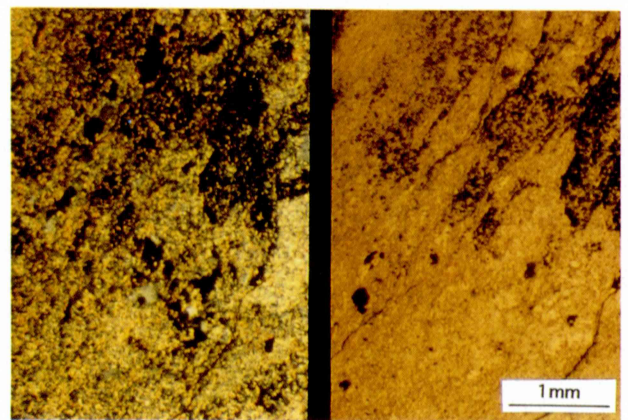


Fig. 26 .

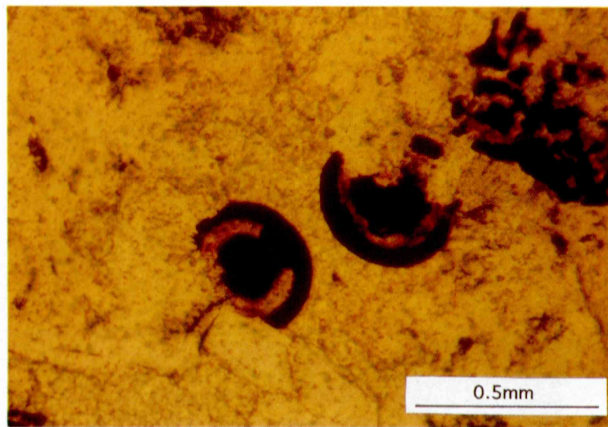


Fig. 27 .

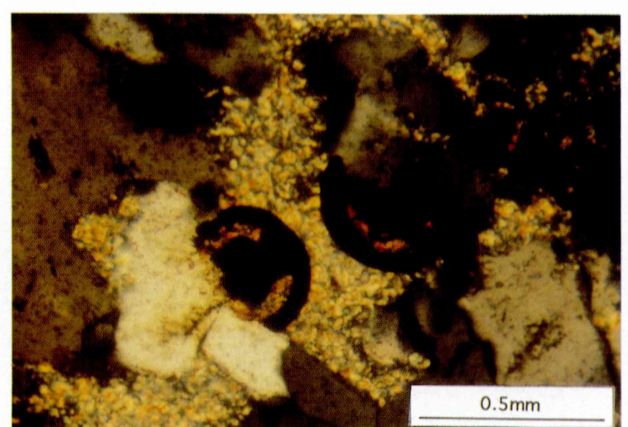


Fig. 28 .

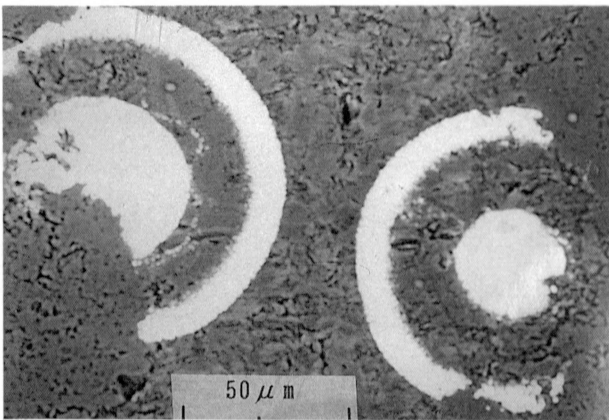


Fig. 29 .

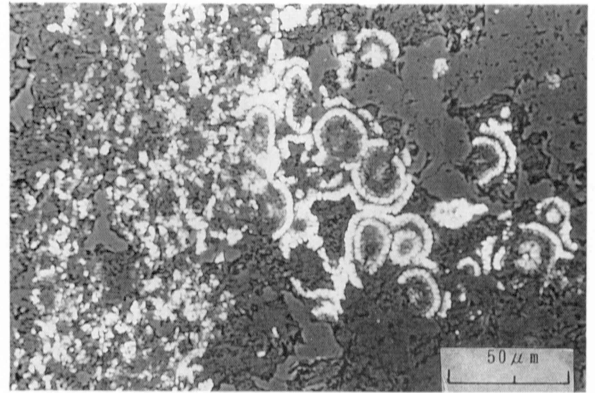


Fig. 30 .

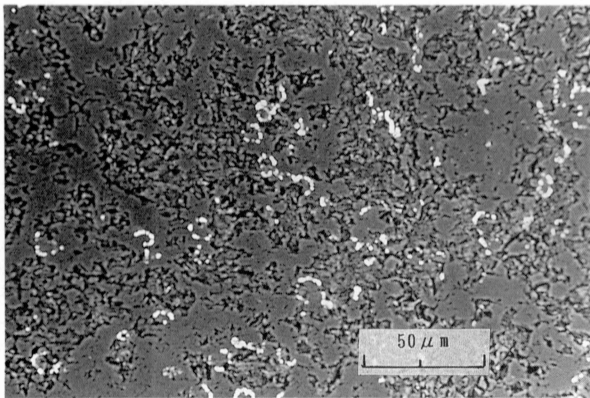


Fig. 31 .

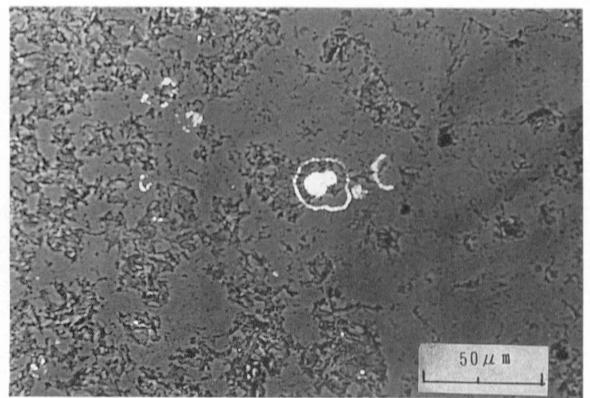


Fig. 32 .

