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## SOME NEW OCCURRENCES OF SASSOLITE IN THE UNITED STATES\*

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Recent finds of sassolite ( $B_2O_3 \cdot 3H_2O$ ) in southern California, Allen and Kramer (1957) and Smith, Almond, and Sawyer (1958) have prompted the author to place on record three heretofore unpublished localities. These sassolite finds, although not as well documented as could be desired, seem worth recording in the literature because of the present widespread interest in boron minerals and relative rarity of sassolite.

## STEAMBOAT SPRINGS, WASHOE COUNTY, NEVADA

In 1941, the author made a study of the minerals of the Steamboat Springs hot spring area. Sassolite was found in crystalline incrustations on the roof and walls of a partly enclosed large hole in a siliceous sinter terrace. The hole was 8 or 9 feet deep and perhaps 10 to 12 feet in inside diameter. The walls were curved over to form a domelike roof. A hole in the roof gave access to the interior. The hole had formerly been filled with hot water and was perhaps an extinct geyser pool. Lowering of the water table had drained the pool so that in 1941, it was relatively dry, but steam issued from small vents in the floor. The sassolite seemed to be forming at the time by evaporation of droplets of water condensed from the steam. The mineral occurred in very thin, transparent, curved, cellophanelike flakes of small size. Perhaps some were as large as 2 millimeters in diameter. The mineral was determined to be sassolite on the basis of optical properties, presence of boron (flame test), and its solubility in water and alcohol. The indices of refraction were not precisely determined but were judged to be consistent with the values for sassolite given by Larsen and Berman (1934). As determined, the optical properties were:

$\alpha > \text{water (1.33)} < \text{ethyl alcohol (1.36)}$ ,  $\beta$  and  $\gamma > 1.45 < 1.46$ , Biaxial (-), very small  $2v$ .

This material was compared optically and by chemical tests with type sassolite from Sasso, Italy, and the two seemed to be identical minerals. The specimens were left with the Geology Department of the University of Nevada.

## THE GEYSERS, SONOMA COUNTY, CALIFORNIA

In 1942, the author was asked to identify some minerals from the collection of the late J. B. Nichols of Sacramento, California. Among these

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minerals was a group from the well known geyser area, Sonoma County, California. These specimens were collected by J. B. Nichols and the late M. Vonsen from Petaluma, California. One specimen consisted of a mat of tiny transparent flakes that had the same optical properties as the Steamboat Springs sassolite. The presence of boron was confirmed by flame test. The same group of specimens contained boussingaultite and mascagnite and other minerals well known from the Sonoma County locality. The specimen of sassolite was retained as part of Mr. Nichols' collection. The disposition of the collection after Mr. Nichols' death a few years ago, is not known to the author.

#### NORRIS GEYSER BASIN, YELLOWSTONE NATIONAL PARK

In 1954, the author examined a number of mineral specimens submitted by the National Park Service to the Geological Survey for identification. These specimens were collected in the Norris Geyser Basin and consisted predominantly of water soluble sulphates and other solfataric and hot spring deposits. One sample consisted of small nodular growths of halite intimately intergrown with at least three unidentified minerals. Sassolite occurred in tiny, curved, transparent flakes coating the other minerals. The optical properties, presence of boron, and its solubility in water and alcohol serve to identify the mineral as sassolite. This material has been retained by the author pending identification of the unidentified minerals.

These three localities, and the presence of boron-bearing waters in each, are of interest in that they are all areas of geyser activity.

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#### NATROJAROSITE FROM NEAR THE MONTANA-WYOMING LINE

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The purpose of this paper is to report an occurrence of natrojarosite,  $\text{NaFe}_3(\text{SO}_4)_2(\text{OH})_6$ , near the Montana-Wyoming line. The senior writer first noticed this material in August of 1954, but was not able to study it