

SOME INTERPRETATION OF PORTABLE TERRESTRIAL GLOBES IN
THE 1850'S - RELATIONSHIPS BETWEEN BETTS'S PORTABLE
TERRESTRIAL GLOBE AND BOKUSEN'S UMBRELLA-LIKE GLOBE

Yojiro UTSUNOMIYA

Water and Soil Environment Div., National Institute for
Environmental Studies, Environment Agency,
Onogawa 16-2, Tsukuba, Ibaraki 305, Japan

Numajiri Bokusen invented a terrestrial globe "Daiyo-Chikyugi" in 1855. His epochal terrestrial globe made from wood, bamboo and Japanese paper was constructed using the same technology as that for framing Japanese umbrellas. Each globe was folded up in a similar way to a coarse oil-paper umbrella. This was significantly advantageous compared with other globes produced during the same period. A Betts's globe made using technology similar to that for framing umbrellas has also been found in Japan. It was a portable globe owned by the Doi family: the ruling feudal clan of Echizen Ohno (the present Ohno City, Fukui Prefecture). It might have been imported from England in the late Edo Period (after 1850's). Although Betts's globe is familiar to specialists in England, research data have rarely been found in both Japan and England. Therefore, the author examined the globe and measured the sizes of its parts. It has eight frames that can be bent outward from each other in the unfolded condition.

The surface of the globe consists of eight gores printed on cotton cloth. Each gore has two meridian lines, so that these lines are drawn 15 degrees apart. The situation is same for the lines of latitude within 75 degrees in both hemispheres. The standard meridian is drawn through Greenwich. Each gore was seamed by a sewing machine. Stitches on the line of longitude 105 degrees west of Greenwich were seamed by hand. Thus, the last termini of the connected gores were sewn together to construct the globe. The connected gores are trimmed with strips of red-brown cloth at the top and bottom termini.

The Mamiya Strait between the Asian continent and Sakhalin was discovered in 1809, and this was evidently drawn on the corresponding gore. Von Siebold published the map of Japan and its vicinities by October in 1839. The eastern part of the border between Russia and the Qing Empire does not show the revised line after the Treaty of Aihun in 1858.

An umbrella with steel-wire ribs was invented after the year 1822. Therefore, based on the information available and the revision of the map, this undated Betts's globe might have been produced between about 1839 and 1858. Relationships between Betts's globe and Bokusen's globe, which are similar portable globes, will be examined.