

Jill Hurley
Lesson Plan- Japan

Kites of Japan

Purpose:

Art Survey 1/ Grades 9-12

An interdisciplinary exploration into the history of kite making and flying.
Art with math, science and history connections.

Essential Questions:

1. Where did kites originate and why?
2. What scientific advances did kites influence?
3. What makes an aerodynamic kite design?
4. What are best weather conditions for kite flying?
5. Will it fly?

Rationale:

Students engage in a history of kites and their functions, view a variety of styles of Japanese kites, then construct their own kite and decorate it using traditional design and materials. Students experience a variety of 2-dimensional surface designs utilizing the elements and principals of art & design as they create their own design in response to the art works of Japan.

Materials:

Slides or a display of a variety of Japanese kites/ taken from resource books.
Handout: Making kites, revised from Internet version
Bamboo or thin dowel rods.
Thin kite string.
Glue. Paper/ washi. Paint and markers.
Japanese Music CD's

Activities:

Day 1: Show variety of Japanese kite slides. Show a few Chinese kites also.

Discussion:

The Chinese kites are more complex in their form, more 3 dimensional and representative of flying insects and birds often made of silk. Japanese kites are simpler in design but more abstract in their surface design, using bold bright colors and large shapes. These 2-D designs consist of images of warriors, Kabuki theatre characters, birds, insects and Japanese words with decoration. The Japanese are intrigued by objects very small and very large, and many kites reflect this fascination as they can be small as a penny or large enough that 20 men must fly it. Kite flying and the tradition of fighting kites was very male dominated, now in modern times more women are seen flying kites.

Day 2: Explore the history of kites and functions of kites.

Readings from Paper Wings over Japan Pg. 13- 25 (History and development of kites) and The Art of the Japanese Kite Pg. 15-20 (Giant Kite Fighting in Shirone).

Discussion:

The purposes of kites and scientific developments that came after the discovery of kite flying. Earliest kites in Japan had ties to religious beliefs. Kites could be purchased at shrines and temples as talismans against sickness or misfortune. Farmers tie stalks of rice to their kites. First born sons and young boys were given kites for celebration. On Boys day (May 5) kites or windsocks shaped like carps are given and flown symbolizing courage and strength. 18th century Japan experienced “kite-mania” Many laws were enacted to enforce restraint. Kites were used for military purposes both in early China and Korea, as well as Japan. There are many tales of men on kites to cross enemy walls. In the 1930’s- Odako Kites as large as houses were extremely popular and would take a whole community to fly.

Day 3-4: Look at kite makers from The Art of the Japanese Kite and Paper Wings. Discuss regional kites and symbols used in the designs. Students select style of kite they wish to construct and create a rough drafts of kite design.

Day 5: Demo of kite making and discussion about creating aerodynamic designs and traditional Japanese papers. Information on aerodynamics can be found in Paper Wings over Japan, pgs. 30-33. Instructions for making and flying kites are on the web site, <http://www.sewing.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fplans.kitez.com%2F> for several varieties of Japanese kites.

Day 6-8: Kite making and painting of designs. Play Japanese music while students work to heighten the experience.

Day 7: Critique of kite designs, students share insight on their designs and selected style of kite.

Day 9: Kite flying.

Assessment:

Students will show an understanding of kites and what makes them aerodynamic by constructing a kite that will fly in correct weather conditions. Kite design will show knowledge of traditional Japanese kite making through selected use of symbolism and construction techniques and oral presentation on the background of their chosen design.

Grade Adaptation:

Kites could be a joy for any age group. In younger class rooms simplify the designs of the kites or simply show Japanese kites and fly them.

Resources:

The Art of the Japanese Kite, by Tal Streeter
ISBN # 0-8348-0088-8
Weatherhill, New York & Tokyo

Paper Wings Over Japan, Kites, by Scott Skinner & Ali Fujino
ISBN# 0-500-27942-X
Thames and Hudson, New York

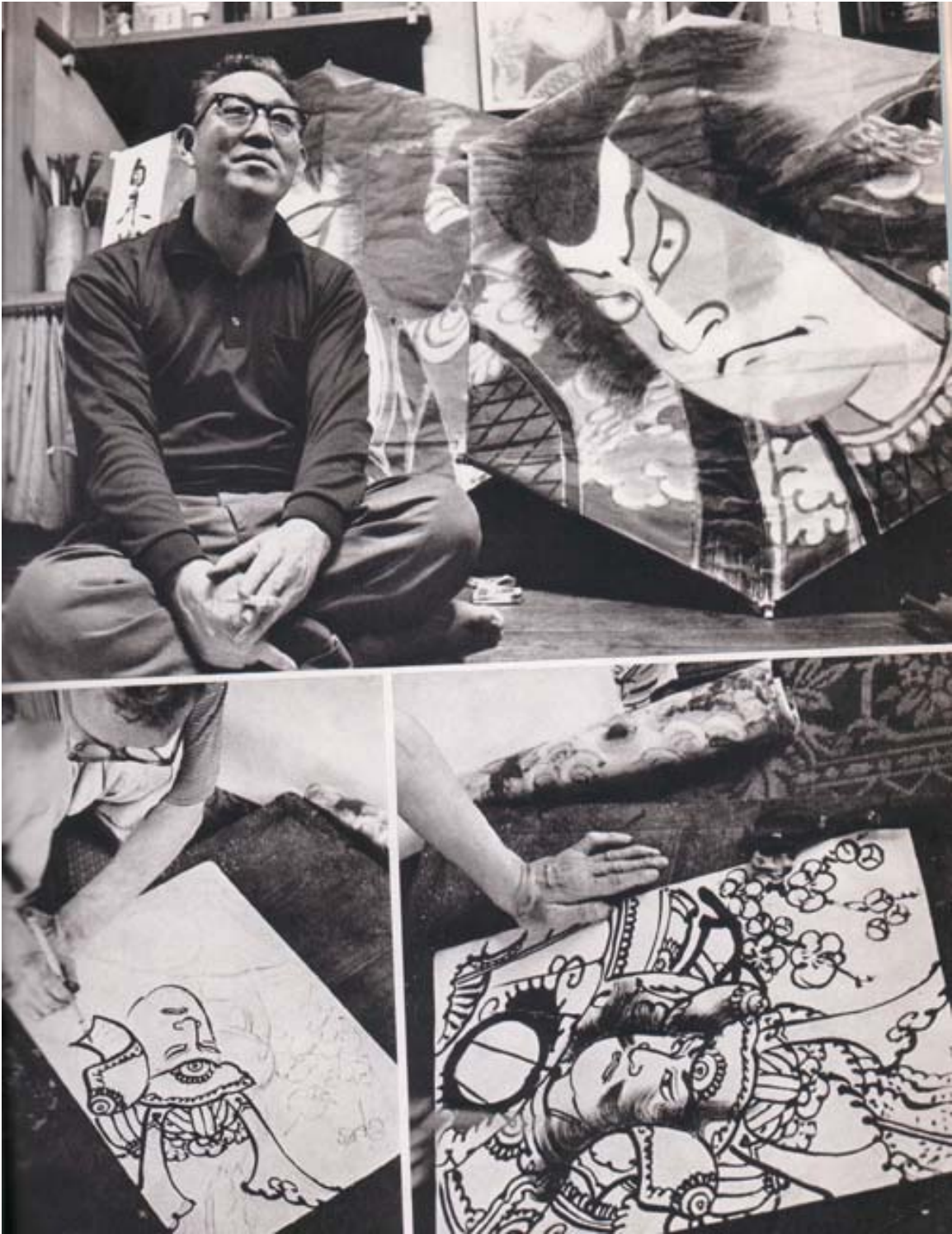
Pictorial Encyclopedia of Japanese Culture, by Edward Seidensticker
ISBN # 0-87040-752-X
Gakken, Japan Publications

Chinese Artistic Kites, by Ha Kuiming and Ha Yiqi
ISBN# 0-8351-2279-4
China Books and Periodicals, Hong Kong

Internet Site:
<http://www.asahi-net.or.jp>

<http://www.sewing.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fplans.kitez.com%2F>

Edo Kitemaker Teizo Hashimoto painting one of his warrior kites. The first drawing is done lightly in charcoal, and he later goes over it in dark sumi ink.
Pg 35 in *The Art of the Japanese Kite*.



In general, three aerodynamic forces act upon a kite in flight: lift, drag, and gravity. For the sake of study, we assume that these forces act upon a single point on a kite's surface. The center of lift is that point at which the air pressure against the kite's surface is concentrated; center of drag is the point at which all the resistant forces of the airflow are concentrated; and center of gravity occurs where all the weight of the kite is concentrated. All three forces are balanced at the center of pressure, and ideally, the kite line and towing point align through the kite's center of pressure (fig. 1). This determines the kite's attitude in flight.

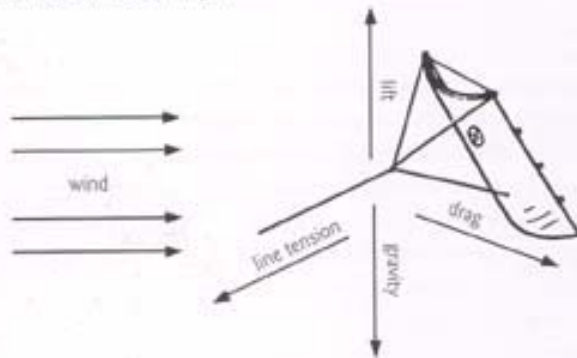


fig 1. The three aerodynamic forces: lift, drag, and gravity, with the center of pressure denoted by "⊗".

Aspect ratio is the relationship of the width of the kite to its length. In most cases, the flat, geometric kites of Japan have relatively low aspect ratios (fig. 2). They are very stable, fly in heavier winds, and have a high sink rate in low winds. Higher aspect ratio kites, like the Niigata bird kites or the Tokyo tombi (fig. 3), are less stable but fly remarkably well in low winds.

TSUGARU KITE

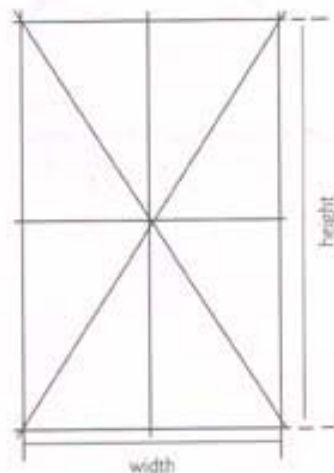


fig. 2. Low aspect ratio (2/3); stable flyer; flies in heavier winds.

TOMBI KITE

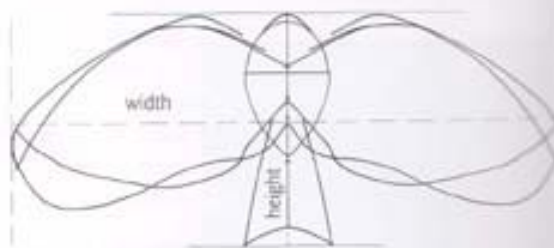


fig. 3. High aspect ratio (2/1); wing span is 2 units to every unit of body length.

Lateral stability—the ability to maintain straight-ahead flight—is greatly enhanced through the use of dihedral (bow) (fig. 4), but in many of the flat kites of Japan, it is augmented by the use of tails (fig. 5). Vertical surfaces like those on a box kite can also contribute to lateral stability but are rare in traditional Japanese kites.

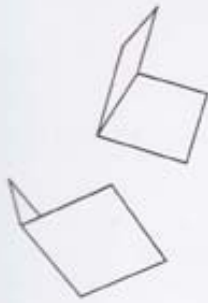


fig. 4. Dihedral, the angle of the wings, or the bow of a kite.

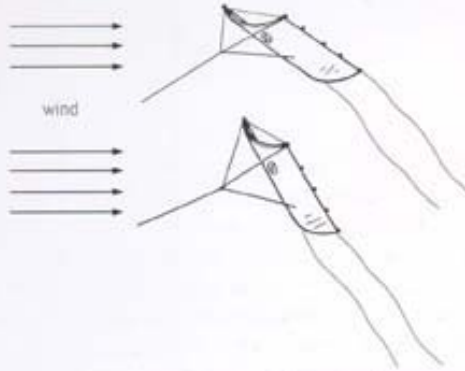


fig. 5. Kites showing dihedral (bow) and further stabilized by the use of tails.

How a Fighter Kite Flies

The Nagasaki *hata* is a very good example of a maneuverable, single-line fighting kite. Flown with a glass-coated line, the darting kite is made to cut the line of an opponent. A flat, tailless kite, the *hata* is inherently unstable (fig. 6): it can yaw, slip, or even roll if the kite flyer does nothing to control it. Control is achieved by pulling on the kite line; the resultant pressure on the surface of the kite causes it to flex back (fig. 7). The flex in the kite's wings causes dihedral, and the dihedral provides momentary directional stability. As long as the kite flyer maintains tension on the line, the kite will fly in a straight track. Releasing that tension causes the kite to flatten, stop, and spin until pressure is reapplied when the kite is facing the desired direction (fig. 8).

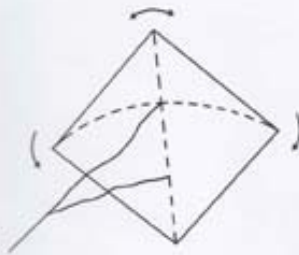


fig. 6. A flat kite is inherently unstable.

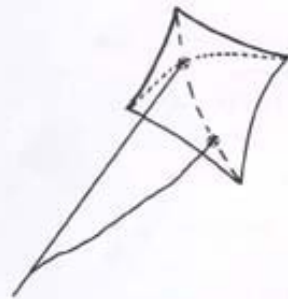
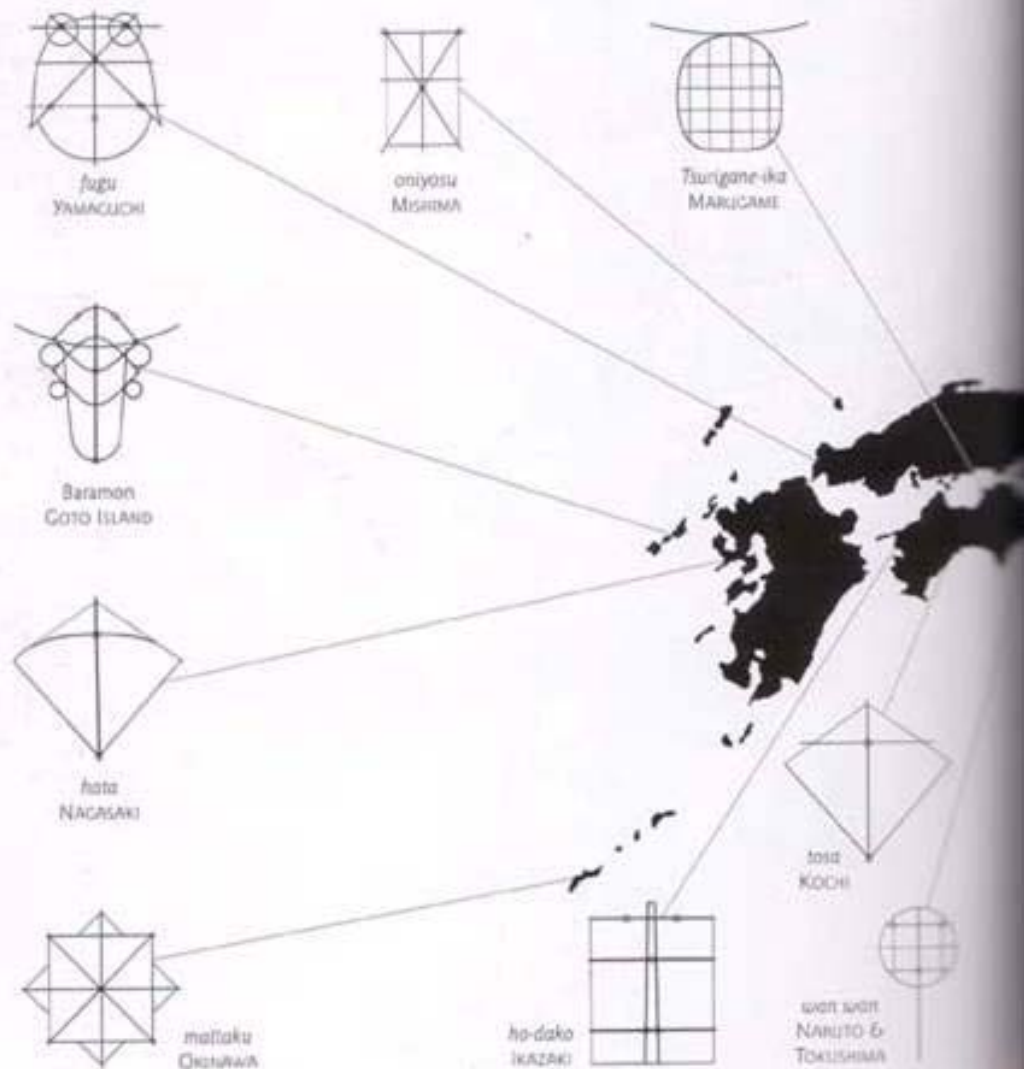


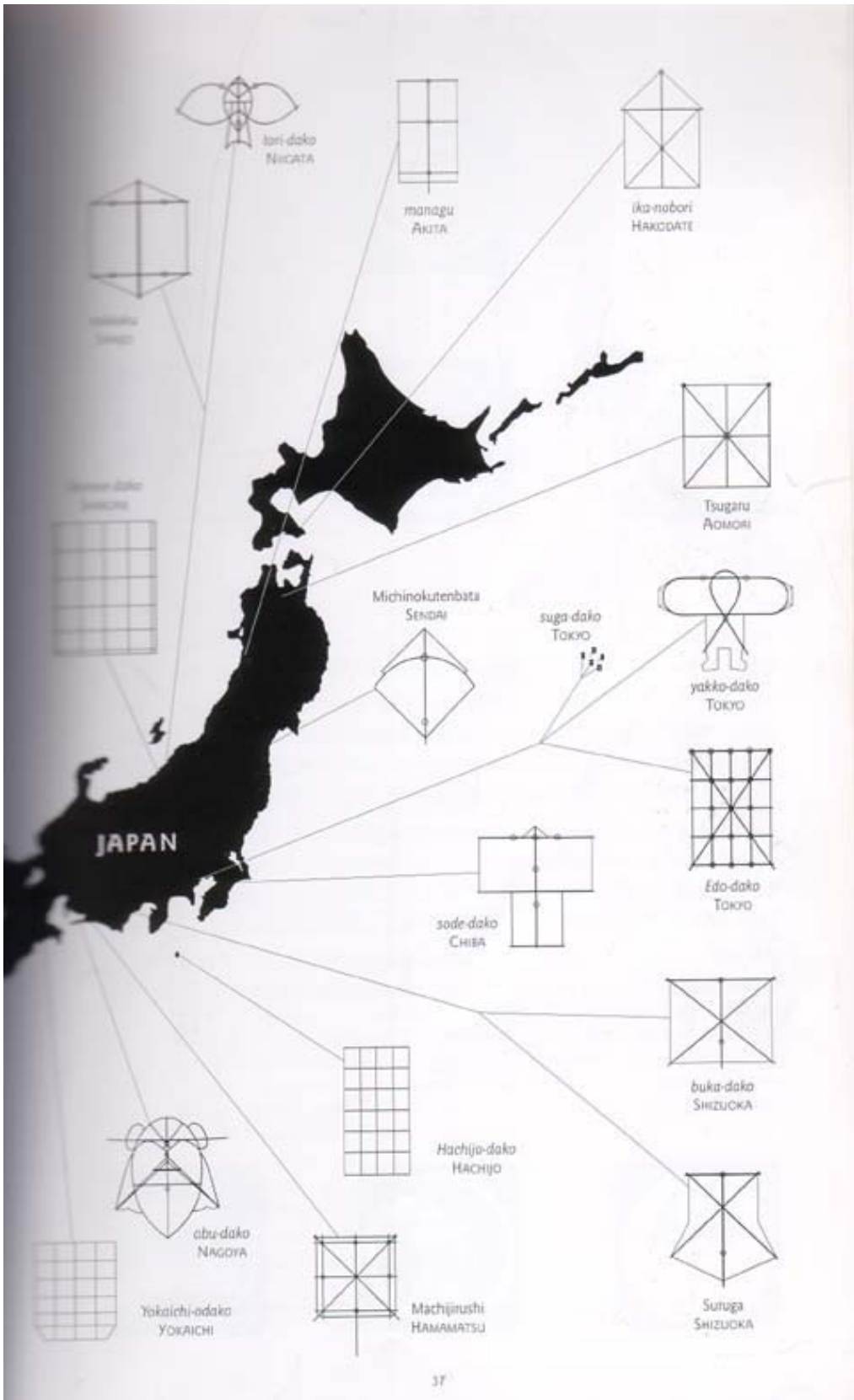
fig. 7. Tension applied on the kite line causes the kite to flex back. The flex causes dihedral, and dihedral provides momentary directional stability.



fig. 8. Slackening of the line causes the kite to stop and spin.

Kites in Japan have developed regionally or locally, and it is not uncommon for two cities within a very small area to have completely different kite traditions. Geography greatly influences the kites of each region. Areas with higher winds require kites with stronger structures; lack or abundance of bamboo dictates structural material. Regional kite styles are shown in many *ukiyo-e* prints from the 1800s: not only are those styles of kites still being produced, but their artwork is as well.





Page 36-37 from Paper Wings Over Japan, Kites