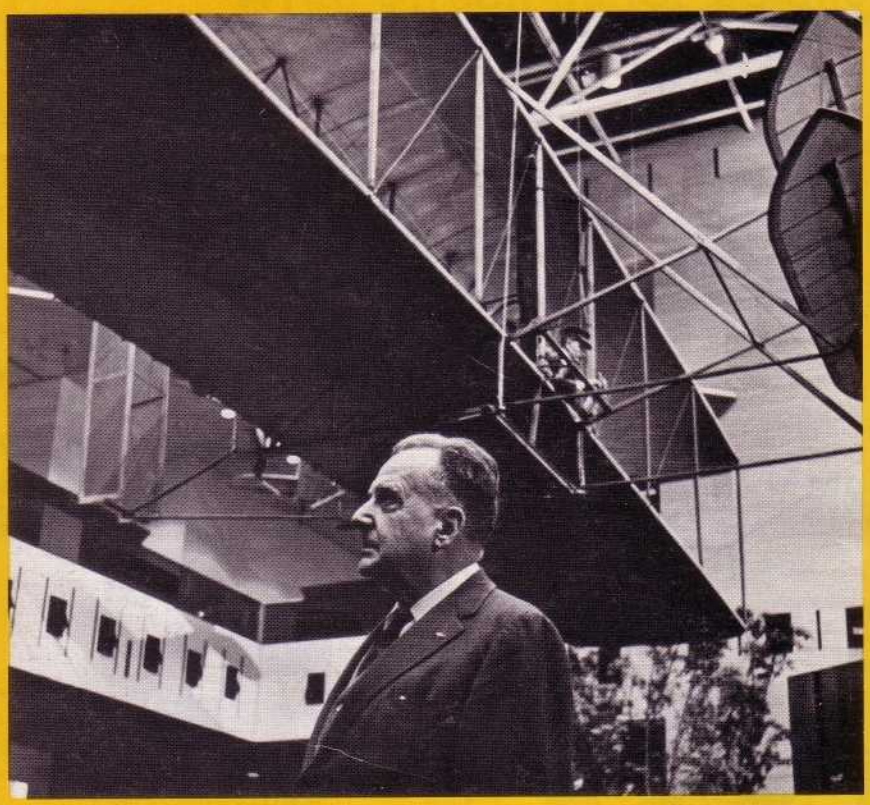
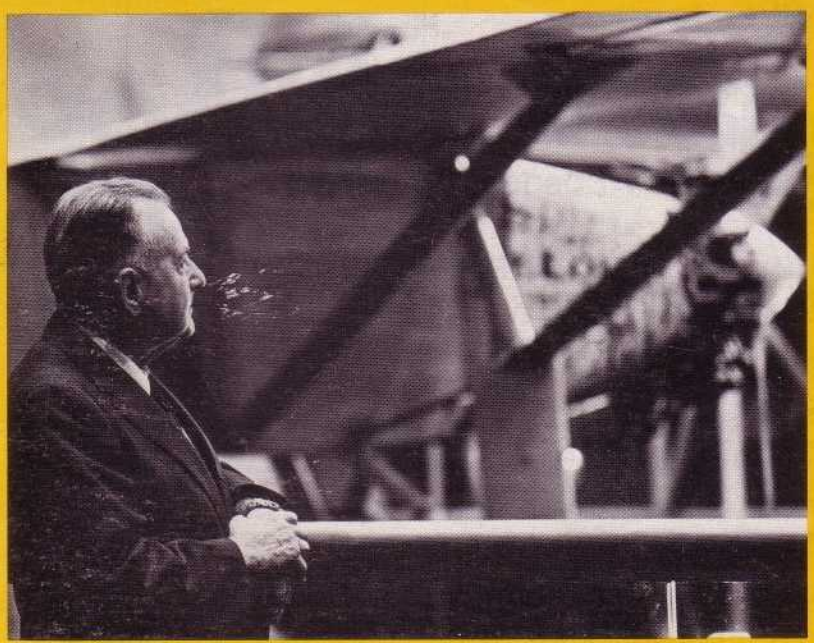
Kitelines

$1.50
SPRING 1977

quarterly journal of the American Kitefliers Association





Paul Garber: Man About Kites at the Smithsonian

Tal Streeter: Heart-Stopping Kite Festivals of Japan

Kid's Corner

The Marconi Jib Kite: Alternatives

The most innovative kite company has done it again!
From the exciting new Sky Serpent 25™ dragon kite (Only $1.00!)
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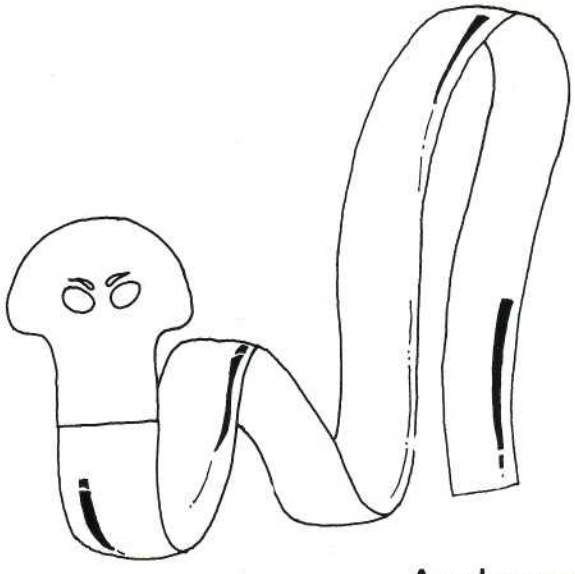

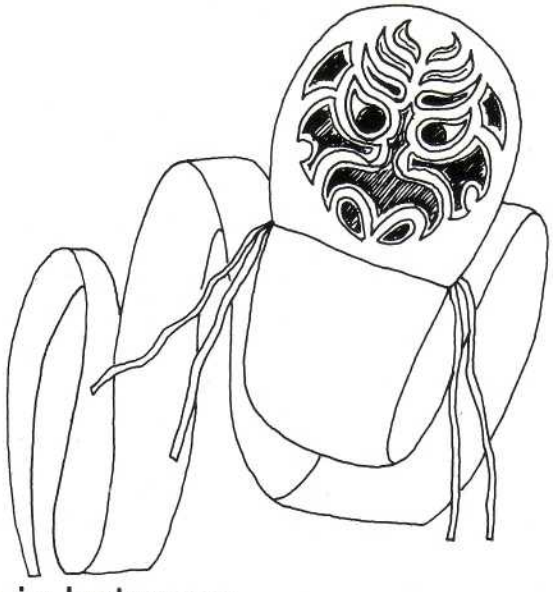

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The Amazing Classic
Alexander Graham Bell
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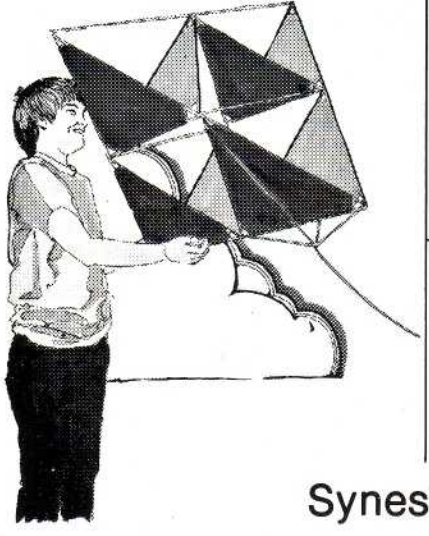
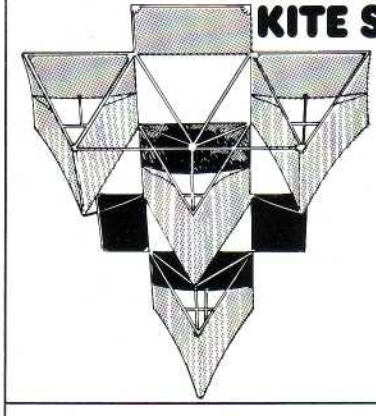


SKYLINKS™
KITE SYSTEM



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Add 15% for Postage and Handling. California residents add 6% Sales Tax.

Send check or money order to:
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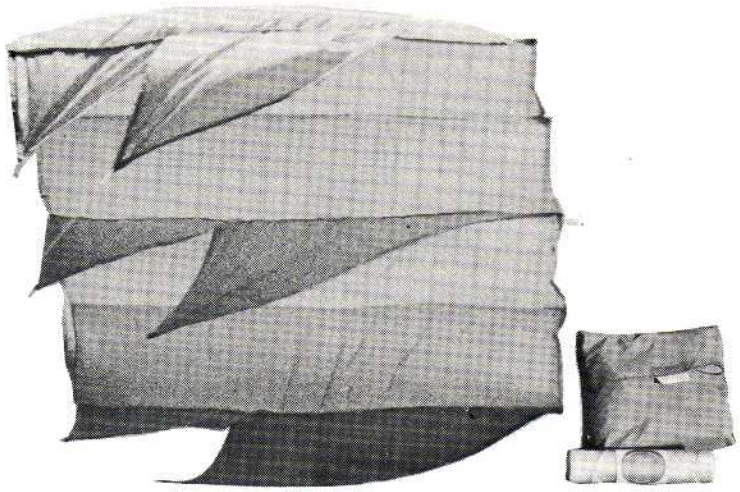
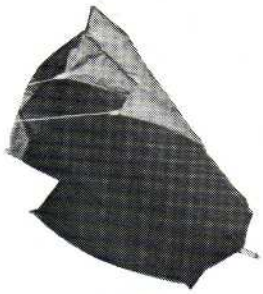
We also want to thank Bob Ingraham for his many years of devotion to kites and all of us who fly them. Our enjoyment was much enhanced by his efforts.

We pledge our support and encouragement to Valerie and Mel Govig, now entrusted with the future of Kite Lines and The American Kitefliers Association.

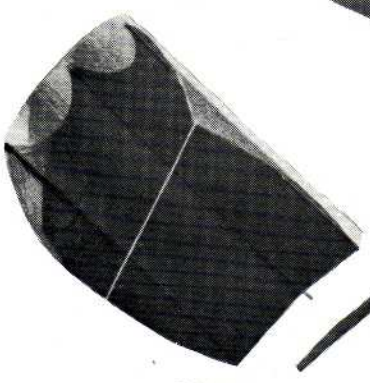


PARAFOIL



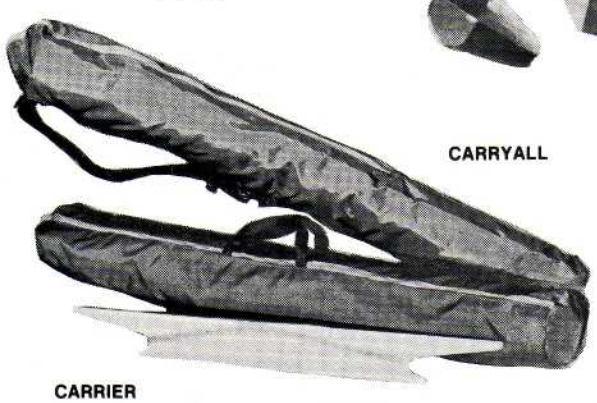
MINIFOIL

OPEN KEEL DELTA



BULLET

BEN FRANKLIN



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JALBERT PARAFOIL, greatest of the new "soft" kites. No rigid members, held in its airfoil shape by the wind itself, folds up to pocket size. This design used for recovery of space vehicles, cargo and personnel chutes, meteorological work. Hi-count multi-colored nylon spinnaker cloth for lifetime use. 28" × 35" in flight, packs in 8" × 10" nylon pouch with instructions, and 500 feet of our own 100 lb. test braided nylon kiteline **35.00**

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BULLET kite, perhaps the most reliable of all kites for the full range of wind conditions. Newly patented design by Ed Grauel has double airfoil surfaces for extra lift and ramjet action. Rolls up for convenient storage in boat, pack or luggage, always ready for flight. Multi-color ripstop nylon spinnaker cloth, complete with matching drogue..... **14.00**

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KITE CARRYALL, heavy-duty nylon kite case with zipper and nylon webbing adjustable shoulder strap, ideal for travelling, fits **OKD** and other roll-up kites **15.00**

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MINI-INSTRUCTIONAL PACKET of 40 easy-to-assemble, easy-to-fly kites with 5 page teacher's guide, for school classes, Cub Scouts, Brownies, etc. All you need are scissors, tape and string. **4.95** plus **.30** postage/handling in Continental U.S.

We also make America's most unique **ADVERTISING PREMIUM KITES** in biodegradable paper and plastic, with your own design or imprinted with your logo. Write on your business letterhead for samples and prices.

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Kitelines succeeding *Kite Tales*
Quarterly Journal
of the American Kitefliers Association

The American Kitefliers Association is a worldwide organization devoted to the advancement of kiteflying. Its quarterly magazine, *Kite Lines*, is published by Verve Enterprises, Inc., for AKA, with editorial and business office at
7106 Campfield Road
Baltimore, Maryland 21207, USA
Telephone: (301) 484-6287

Chapters of AKA are active in Baltimore, Seattle, Long Beach, Rochester, NY, Clarkston, WA, Hawaii and New Zealand. Ties are maintained with other far-flung and international groups also. Write for contacts.

Correspondence and inquiries regarding membership/subscriptions or contributions should be sent to AKA at the address of the publisher.

Membership/subscription dues: One year (4 issues), $6; two years (8 issues), $11; three years (12 issues), $15. Single copies @ $1.50 are available from the publisher or fine kite shops throughout the U.S. Postage outside U.S., $1 per year additional. Special air mail rate for foreign mailings, $5 per year additional. Subscriptions always begin with the next issue, unless current issue is specified. Back issues are available for $1.50 ($1.75 outside U.S). (Back issues of *Kite Tales*, predecessor of *Kite Lines*, are available from Robert M. Ingraham; see *Classifieds* for address and list of issues presently available.)

Change of Address: Attach or copy mailing label in letter, giving new address. If mailing label is wrong, please correct it.

Advertising rate sheet and information is available on request of AKA at the address or telephone of the publisher.

Contributions are invited from kite enthusiasts. Articles, captioned photographs (preferably black-and-white, 5″x7″ or larger), reports, clippings (see *Classifieds*), letters and other material relevant to kite interests should be sent to AKA at the address of the publisher. Articles should be typed.

Contributions used become the property of *Kite Lines*. Return of unsolicited material cannot be guaranteed unless accompanied by ample stamps and envelope, self-addressed. Accuracy of contents of *Kite Lines* is the responsibility of individual contributors. Diverse views presented in *Kite Lines* are not necessarily those of the editor or of the American Kitefliers Association.

Closing Dates for advertising, articles and news are Jan. 1 for Spring, Apr. 1 for Summer, July 1 for Fall and Oct. 1 for Winter.

Postmaster: Application to mail at second-class postage rates is pending at Baltimore, Maryland. If undeliverable, please send address change Form 3579 to *Kite Lines*, 7106 Campfield Road, Baltimore, MD 21207.

Contents

Volume 1, Number 1, Spring 1977

Departments

Cover

Photos by Anneke Davis catch Paul Garber at the Smithsonian's new National Air and Space Museum (see story on page 18).
Top left: Garber in his office, recounting his experiences with kites.
Lower left: Garber says, "I knew Lindbergh. He and I were good friends."
Top right: Garber beneath the Wright Brothers' craft flown at Kitty Hawk. As a boy, Garber saw Orville make test flights. Garber says: "You know, prior to the Wrights, for 250 million years there were wings in nature. Then we had power and rudders, but never three-axial control. *That* is their invention."

Introducing our new kite & line

& our new kite line.

We are the San Francisco Kite Factory. A company pleased to be introducing to you our *two* new kite lines for 1977.

The first line features a beautiful spectrum of kites from around the world, at suggested retail prices that range from under a dollar to just under ten. The imposing Japanese *Centipede.* The colorful, all-cloth Brazilian *Eagle.* The delicate Chinese *Butterfly.* And, of our own manufacture, the 35-foot *Sky Dragon* and *Sun Chaser,* the black, multi-tentacled *Octopus* and the inexpensive, easy-to-fly *Sled*—all handcrafted using Du Pont Tyvek,™ a practically indestructible plastic material that is perfect for kites.

Each SFKF product is preassembled and individually wrapped in attractive, rugged, four-color packaging. All are available in modest minimum order quantities. Or, as part of our International Collection—a durable, eye-catching merchandiser that houses 84 of our kites, 48 assorted lines and also includes a free display kite and four-color window poster.

The second kite line introduction hasn't so much to do with the line as with our great new spools to hold that line. We use top quality 20- and 30-pound test, of course. But the real story is our one-piece, plastic-molded kite spool that is not only virtually unbreakable, but virtually eliminates center-core line catching so prevalent with the Indian lacquered wood alternatives. And there is only one place to get them. From us. The San Francisco Kite Factory. A company that wishes you well. And wishes you wind.

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Letter from the Editor

It's a New Magazine

After 12 years of devotion to editing our magazine, Robert M. Ingraham has retired and passed the editorship over to me.

Bob will continue to contribute, of course (see page 56), but he will be able to relax, and we wish him the good life he so greatly deserves. We owe him endless gratitude for maintaining the magazine and organization through thick and thin—more often thin. Our feelings extend to his wife, Hazel, whose behind-the-scenes work as Executive Secretary made it possible for Bob to stretch himself to cover the numerous roles that fell to him. We thank both Bob and Hazel Ingraham, and we doubt we will ever stop thanking them, for the debt is beyond measure.

It's a new magazine, as you see! Once I was uncorked I could not go back into the old bottle. Ideas began to flow, insisting on expression, demanding a format and a personality that would fit them. The old *Kite Tales* served us well, but we think the change is salutary, a vital sign. A publication that grows and changes can best sustain the life it reflects. We hope you like *Kite Lines* enough to tolerate a few bumps in the road as the reins change hands. And we hope the new magazine succeeds.

Working on a first issue of a new publication is both frightening and exhilarating. It draws out the creative juices but at the same time confronts an editor with some of the fundamental questions of journalism—before the answers are really available. Who are we talking to? How much can we assume the readers know? What are their needs and interests? Who else should be reading us and how do we attract them?

Without yet having run a survey of our membership, and with no clear picture of our audience, I simply imagined what it might be: a range of ages, an assortment of incomes, a variety of occupations, a gamut of experiences. There seems to be only one trait in common: intelligent, intense interest in kites. Though we cannot assume that every reader already knows a great deal about the subject, we believe he wants depth and accuracy and careful judgment in these pages. We imagine him or her to be a glutton for information, an appreciator of wit and wisdom, and a dreamer of high dreams. It will be a pleasure to work for such readers.

What about the Association?

Many members didn't realize that Bob did it all; he was the Association. Since most people are satisfied not to be involved, it was possible, though increasingly difficult, for Bob and Hazel to hold the fragile craft steady in all winds. Through 12 years we have survived as a group, a nucleus, a community that can now become responsible for assuring its own future. I believe Bob entrusted me to take over the quarterly because he knew I would care about the organization as much as about the magazine itself, and that I would have the general welfare of all kiters—manufacturers, sellers, fliers and enthusiasts alike—at heart. I sincerely hope to live up to that faith. Bob was also aware that the organization's chance to flourish could be greatest based in Baltimore, site of AKA's largest chapter, the Maryland Kite Society. I recognize that I've taken on not only a magazine but all the unsolved problems of the American Kitefliers Association. With help from everyone, we can, I believe, get it together—incorporate AKA, elect a Board of Directors, shape our goals.

Reader, consider this letter your personal invitation to suggest the machinery, bylaws and steps to take that will enable us to operate as a real organization. Though the magazine will be situated in Baltimore, from which active manpower will be drawn, the Association's representation should be as wide as possible. Also, as Editor I am looking to a panel of Advisors to evaluate technical materials and give general guidance to the publication. The contents need no longer depend solely on the background, responses and resources of one person.

I hope too that all of you who have contributed in the past to the pages of the magazine will continue to send in your reports, studies, letters and photographs. We hope new members will be inspired to write and that there will be a correspondent from every cluster of active kitefliers in the country.

What Else is New?

Another change must be announced. We need to raise the subscription/dues fee to $6 for one year beginning with this issue of *Kite Lines*. We are starting from scratch in all respects, and that includes finances. Naturally at this moment we are working on a very close margin and we need all the help you can give us. We are asking everyone, no matter when he last renewed, to *renew again now*. We will of course extend the time you presently have on the books. You will not lose an issue. And you will be recorded as a Charter Subscriber of *Kite Lines*, a very special person to us for as long as we live. Also we are making two- and three-year memberships (never before offered) available at lower rates: $11 for two years and $15 for three. The latter is an especially big bargain, saving you $3 over the single copy cost and in effect "freezing" the old $5 annual rate—a real hedge against inflation. Also, new orders will bring you a *bonus* in the form of a copy of the new AKA *Annotated Kite Bibliography*, the first in what we hope will be a series of special services to members. See the enclosed order blank, "A Little Puff about the American Kitefliers Association."

It's a new year! It's a new magazine! It's a new organization! There are so many opportunities for involvement, new programs and good times stretched out before us. Send us your thoughts, kiteflying friends. Write. Call. We depend on you. You are very much wanted and needed in the breezy, exciting, beautiful world of kites.

Windily yours,

Letters

Studying Kites in France

I have found the address of your Association in the book *Kites* which appeared in France in the Editions Gallimard, and let me say the School of Fine Arts of Clermont Farrand is preparing a two-year experiment on paper kites subsidized by the Secretariat of State for Culture. (The attached article from the journal *La Montague* treats of this experiment.)

I should be obliged to you if it would be possible for you to let me know of all information resulting from your own experience in this field which would be useful to us, and also if you would send us some issues of your magazine *Kite Tales*, for which I should be grateful to you.

On my part, I would keep you informed of the progress of our experiments by addressing to you in return all relevant documents.

Thanking you in advance, please accept my best sentiments.

Mr. Andre Selliez, Documentaliste
Ecole Regionale des Beaux
Arts de Clermont Ferrand
11, rue Ballainvilliers
63000 Clermont Ferrand, France

To the best of our schoolbook translating ability, the attached article states that all workshops of the school (which appears to be a teacher training institute) will work on kites for two years, exploring their aesthetics, aerodynamics and physics. Local industries will be involved, too. An outdoor city event is planned to encourage "a feast in the heart of men." (Had we but Secretariats of Culture, industrial support and two-year intensive training programs—what could we not do!) Those of you who are involved in "higher education" with kites may want to respond to this inquiry. Polish your French or find a French friend and send Mr. Selliez your curriculum outline and tips from your experience. When you later receive "all relevant documents," please share them with Kite Lines. *(See page 25 this issue, for information on the recent Paris kite exhibition.)*

Control Kite Dither in England

At present I am in England till April 1977. The big increase in kiteflying interest here appears to have been started by Peter Powell and his control line kite. This type of kite is very popular. Where there is an open space and reasonable weather someone is sure to fly a control line kite.

I have seen at least half a dozen different makes using the same principle. The most unusual is the "Flexifoil" made by the Kite Shop in London. In appearance it is not unlike the multicell parafoil but it has no triangular fins. A glass fibre rod is passed horizontally through the bottom leading edge and flying lines attached to the ends of the rods. When flying it assumes an upside down U shape—the stronger the wind the deeper the U. This type of kite is extremely fast, so fast that the flying lines scream.

Another type is made by the Frisbee Company, the flying disc people. It is also called a Frisbee. Made out of plastic and glass fibre rods it resembles a Peter Powell, but performs differently.

The Dunford [Flying Machine] kite resembles the Conyne in shape, has a vent, but no triangular section in the middle. Most impressive to me are the Powells flown stacked with their plastic tube tails tied to the kite centre. Performance of all these kites is difficult to describe, but they are definitely all different. Some are family cars, others sports cars and there is the odd full blown racer amongst them.

I attended the British Kite Fliers twice-yearly get-together at Old Warden Airport near Biggleswade on the 10th October. There I saw kites which I never knew even existed. To name a few: Brogden's Kite—a six-wing diamond shape kite with dihedral. All six wings are adjustable. Russell Hall's Kite—a very pointy Rogallo wing with two triangular penants at the rear. The Flare Kite resembles a Conyne without triangular keel and vent. Down the middle are two sets of triangular fins. The cross-spar is bowed. It flies in extremely light winds like the delta does.

My name is on the waiting list at the Kite Shop in London for a Flexifoil. They have a thousand on order and at $30 apiece there must be money in the kite game as well. Besides, they sold nearly their entire stock by Christmas.

W.B. van Graan
Krugersdorp, South Africa
writing from Chelmsford, Essex, England

Nihonjin Wa Dekimaso Ka?

When I was seven years old, I flew for the first time my own hand-made kite. I could not forget my excitement at that time and have been flying kites for 52 years since then.

I am very proud of my "original kite," because it is the only one in the world. While I am running my tile business, I teach kite-making at workshops with the YMCA, YWCA, elementary and junior high schools, and many residential quarters.

My schedule of all Saturdays and Sundays is filled. The Musashino City Education Committee asked me to teach 3,000 boys and girls of 15 schools.

In order to have more friends who enjoy nature through kiteflying, I published *The Kites of Creativity: How to Make 33 Kinds of Masterpiece Kites.* Twelve thousand copies

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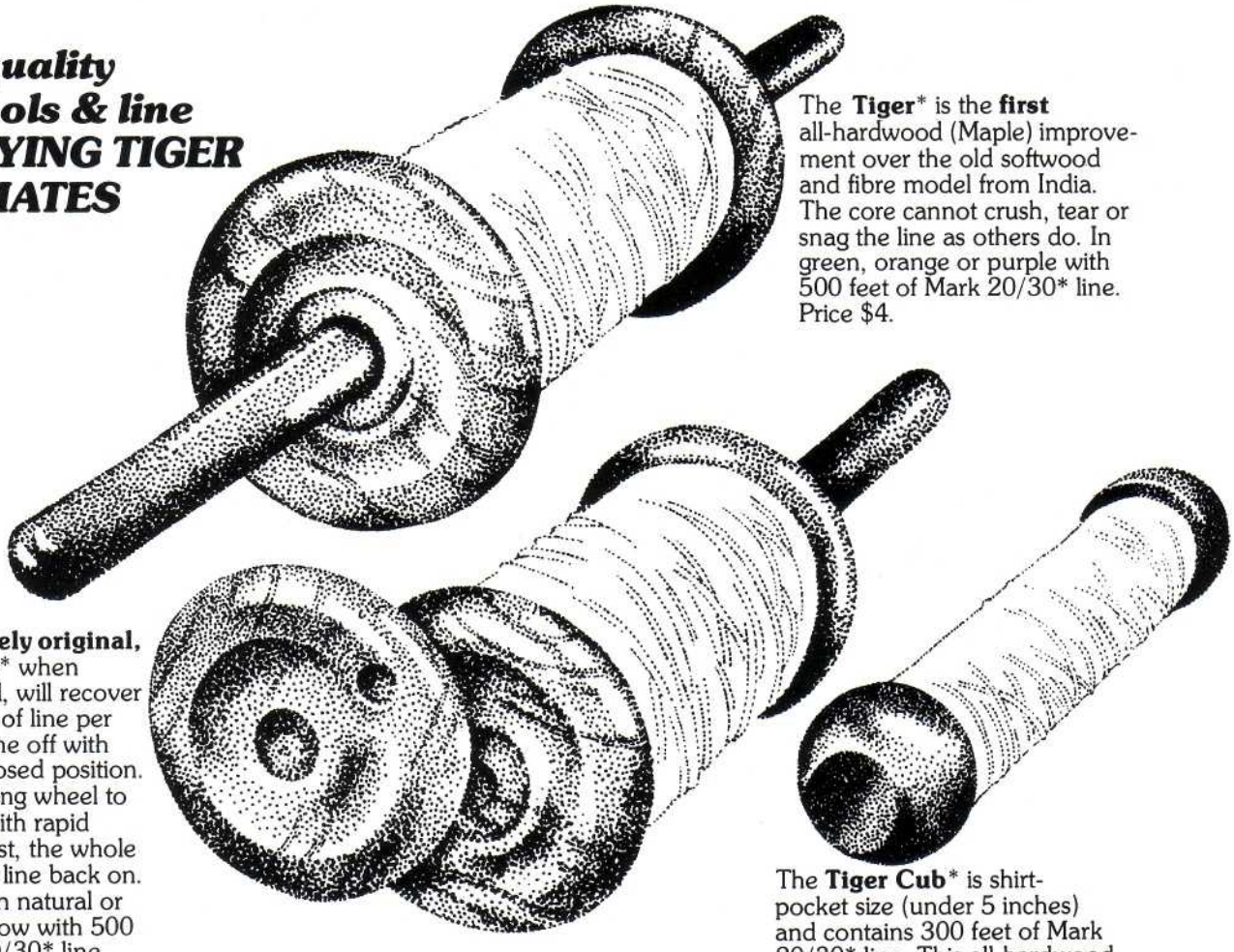
Wind up with our Tigers & you'll *never* let go!

Finest quality kite spools & line from FLYING TIGER ASSOCIATES



The **Tiger*** is the **first** all-hardwood (Maple) improvement over the old softwood and fibre model from India. The core cannot crush, tear or snag the line as others do. In green, orange or purple with 500 feet of Mark 20/30* line. Price $4.

New and **entirely original,** the **Tiger Tail,*** when properly flicked, will recover about 200 feet of line per minute! Spin line off with top wheel in closed position. Rewind by sliding wheel to one side and with rapid flicks of the wrist, the whole spool spins the line back on. All-hardwood in natural or purple and yellow with 500 feet of Mark 20/30* line. Price $5.

The **Tiger Cub*** is shirt-pocket size (under 5 inches) and contains 300 feet of Mark 20/30* line. This all-hardwood spool has colored ends. Price $2.

All spools feature Mark 20/30* line, woven to our specifications and specially processed to eliminate practically all kink and stretch, providing quicker and more positive response from your kite. It has the low wind resistance of a good 20 pound line, but will withstand a 30 pound pull or more. Our line provides the advantage of 2 spools in one, suitable for almost any kite from mylar fighters to all dragons and most box kites.

Check or money order only, please.
California residents add 6% Sales Tax.
Please add .75 cents per spool, postage and handling.
Dealer inquiries invited.

FLYING TIGER ASSOCIATES

P.O. Box 48634 Los Angeles California 90048

**Trade Mark of Flying Tiger Associates*

Letters

(Continued)

of the first print were sold out within a month, and the second print is selling pretty well.

Up until now quite a few kite books have been published in Japan, but all of them mainly introduced kinds of kites. My book is the first to introduce my new "original kites."

It would be my great pleasure if my book could be translated into English for the U.S., Canada, Great Britain and other countries. Also it would be my greatest happiness if I could teach kite-making to the boys and girls of western countries. I am looking forward to having someone invite me for those purposes.

Takeshi Nishibayashi
Tokyo, Japan

Introduction to Mr. Nishibayashi's book by Professor Tsutomu Hiroi of the Tokyo Pedagogic University, a noted kite author:

Mr. Nishibayashi, as a member of the Kitefliers Association of Japan, has shown his skill in kite -making at "The Sky Festival." We often observe that Mr. Nishibayashi's Korean kite alone, even when the wind scarcely blows, flies several hundred meters high on the ascending current.

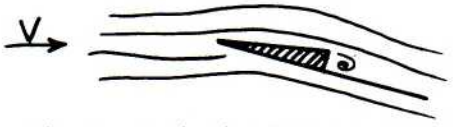
When I was at the university in Denver, Mr. Nishibayashi skillfully flew his life-size Swallow Kite, consisting of small pieces of bamboo and paper, and he greatly contributed to international friendship.

His original kites introduced here in this book look easy to make. However, they have hidden subtle secrets. This is a very enjoyable workshop book, through which Mr. Nishibayashi shares the pleasure of kite-making and the secrets of his original kites with many more people.

Kline-Fogleman Questioned

Shortly after the last issue (Nov. 1976) of *Kite Tales* came out, I found the enclosed article on the Kline-Fogleman airfoil that Dr. James D. DeLaurier sent me some time ago. Dr. DeLaurier is an active kiteflier and an AKA member. To quote briefly from a letter which accompanied the report:

"Our tests showed it to be a poor performer in its normal attitude (step underneath), but that it was considerably better 'upside down.' I speculate that there's a 'trapped vortex' which gives an effective high-cambered airfoil."



I hope you take the time to try to go through the report. It is not as technical or mathematically complicated as its imposing cover sheet would seem to indicate.

Keep up your fine job in producing *Kite Tales.* I read it from cover to cover. Even the advertisements are interesting. I always look forward to the new ideas that Ed Grauel is coming up with from his vast experience.

Charlie Sotich
Chicago

The report referred to is AIAA Paper No. 74-1015, "An Experimental Investigation of the Aerodynamic Characteristics of Stepped-Wedge Airfoils at Low Speeds," by J.D. DeLaurier and J. M. Harris. The seven-page paper is out of print, but is available in photocopy for $5 or on microfiche for $2 from the American Institute of Aeronautics and Astronautics, Technical Information Service, Attention: Library, 750 Third Ave., New York, NY 10017.

A Generous Boomerang Return

Items in *Kite Tales* about boomerangs have been forwarded to me and I'd like to comment.

Kites and boomerangs complement one another in a most pleasant way. Paul Garber, the Smithsonian's kite expert, for example, always carries some boomerangs in his van to throw when the wind is down completely. And he is so impressed with boomerangs in general that he has been good enough to have me join him in giving joint presentations on kites and boomerangs at such places as the Goddard Space Flight Center.

Boomerangs parallel kites in many ways: they are cheap to make, aerodynamically challenging, of ancient origin, and charming to fly.

As an enthusiastic flier of kites on the Washington Mall each spring, I'd like to urge other fanciers to enlarge their sports boundaries to include boomerangs—the device that works best in perfect calm, and thus the ideal balm for a frustrated kiteflier on those temporary occasions when he can't get his equipment into the air.

On behalf of the Smithsonian Institution (for which I teach an annual boomerang making and throwing workshop), I'd be most pleased to offer readers of this publication a free plan for a boomerang that does return. And can be caught. You'll see. If you want a plan, write me.

Wishing everyone many happy returns, I am

Benjamin Ruhe
1882 Columbia Road, N.W., Apt. 37
Washington, DC 20009

Are Tails a Drag?

I can understand your distaste for tails. I view as more elegant a design which will remain stable without a tail, but city flying, with the currents caused by buildings, and my desire to test fly prototypes not designed for cities have forced me to consider tails closely.

My experience with drogues began when I got sick of telling children that the carp (Japanese koi streamers) they had bought were not kites and could never fly. I didn't think it would hurt much to use them as decorative tails, and the kids were much amused. I find the effect pretty, and since the carp are available in sizes from six inches up it is simple to balance wind speed/kite size/drogue size.

Troubled by the extreme drag of drogue tails at good altitudes, I analyze this in terms of a threshold effect which only occurs with drogues in normal wind speeds. I am going to skip all the math and assumptions (in von Karman). At an air speed which differs for each drogue, the air flow through the drogue changes suddenly from a smooth (laminar) low friction/low drag one to a turbulent high friction/high drag one. This can be avoided by using drogues of large diameter, but the visual effect is much like a kite towing a garbage can.

People seem confused about the very different effects of increasing tail length and increasing the length of a tail towing line. Tail length has a direct linear relation to the drag the tails produce, and to the stabilization of the kite (also to the weight of the tail system, but I assume we are not dealing with duffers who use a heavy tail to ballast a poorly designed or rigged kite). Increasing the length of a tail tow line (as with a drogue) increases neither the drag *nor the leverage* exerted by the tail. The lever arm we are considering is defined by the point of bridle attachment and the point of tail attachment. Inserting a piece of string into that system does not affect either the length of the lever arm or the drag appreciably. If a tail is to have more effect it must either have more force, obtained by increasing tail length or area for more drag; or more "leverage," which can only be obtained by lengthening the rigid lever arm, i.e. adding a boom to the aft of a longitudinal spine.

There is, however, a *non*-leverage effect of drogue and pony-tail line length. The air directly aft a kite is highly turbulent, and any tail type is whipped by these winds. Too short an attachment line will put the trailer right into this turbulence, causing the kite to yaw and pitch. Too long a line (city fliers beware) and the trailer might fall into a different wind current and pull the kite out of the sky. I usually use lines about 1½ times the length of the kite but this is only a rule of thumb.

I hope I have clarified rather than confused.

Phil Liloia
Philadelphia

Tails are an easily tangled topic. For further discussion of them, see the article in this issue on page 54.

Bridles: Seek and Ye Shall Find

Being a newcomer to kiteflying (I've only been at it about 3½ years), I was mildly surprised at Gary Hinze's rather complicated but undoubtedly accurate suggestions for bridle setting on rectangular kites (*Kite Tales,* Vol. 10, No. 4, page 31).

With your permission here is a simple technique which works for many single-plane, tailless kites including rectangulars, rokkakus, sarugas, Eddys, Nagaski fighters

and buka kites, to name a few.

After tying a two-point bridle to the frame, tie the flying line to it in such a way that it is tight but can be moved to a new position.* Simply slide the flying line down to the point where both legs of the two-legged bridle are equal. If the kite is pulled now it will shake from side to side without rising. One-sixteenth inch at a time, move the flying line up the upper leg of the bridle and pull it after each 1/16 th inch move. At the first position it stops shaking back and forth and rises smoothly, *secure*† the flying line permanently because you've found your spot!

As critical as this point is, this technique locates it easily. Any increase in the angle of attack by further shortening the upper leg will only decrease the kite's best flying angle and if carried too far will cause the kite to spin. It is also interesting to note that this is also the point at which the kite is most maneuverable.

I first found this technique when adjusting a 28x20-inch bowed rectangular kite and have since found that it applies to most shapes.

Wayne M. Schmidt
Mather AFB, CA

**Pete Ianuzzi, aficionado of knots, suggests for this a "lark's head" knot attached to a loop, either of cord or preferably a ring (curtain ring, washer, etc.) as in illustration:*

†*Ianuzzi's way: put a drop of glue on it.*

Any Indian Fighters in Texas?

During a recent stay in Pakistan I became involved in kite fighting. Do you have any information on groups, clubs or points of contact that share the same interest?

Richard J. Crites
1901 Boland St.
Copperas Cove, TX 76522

We are sending Mr. Crites the addresses of the few we know who are specifically interested in organized kite fighting: Stan Ahmad of Chicago, Tom Joe of Long Beach, Vic Heredia of San Diego, and Dinesh Bahadur of San Francisco. Since all of these are far from Texas, we're also sending him the address of Richard Robbertson, one of the mostest kitefliers in Texas. Other enthusiasts near Mr. Crites are encouraged to respond—and tell Kites Lines *if anything develops.*

It's All Relative

It would seem that some kitefliers are worried about the new metric system. Yet nothing could be simpler.

In kite design and kite building the proportions are more important than the *name* you use for your measurements, be they inches or centimeters, yards or meters.

When I make up my mind to make a kite, I look into *Kite Tales* or any of my kite books for a plan. If I want it smaller than the plan, I halve the measurements; or I double them if I want it larger. I take length or wingspan or whatever and try to figure out how large I want my kite to be in *units.* These units may be half-inches, inches, feet, centimeters or whatever.

I know that six inches is half a foot. I know that one centimeter is about half an inch. So if measurements are given in centimeters in the plan and I use inches I'll get about twice as large a kite; and so on.

It all boils down to taking your yard or your meter (depending on which part of the world you are in) and seeing how big that kite so-many-units high will be, and then using the same units for all of your measurements.

The second immediate problem is determining the cord strength. Again, one kilo is about two pounds. Considering safety factors and the variability in actual (textile) strength vs. advertised strength of all monofilaments, cords, twines, etc., we can safely (enough to satisfy our needs) consider two pounds to be equal to one kilo. So a 20-lb. twine is a 10-kilo twine.

The third measure is wind speed. When we go to the field wind speed may vary greatly from one location to another. The wind speed predicted by the weather bureau will be what they measure at their nearest station. Yet this speed will not include turbulence, variation at higher altitudes, thermals, etc. Only you in the field will know whether you have too much or too little wind. Yet for estimating purposes one mile equals about two kilometers. So wind traveling one mile per hour will be the same thing as wind traveling two kilometers per hour. A five mile-per-hour wind is about a 10 kilometer-per-mile wind.

Easy isn't it? Let's review:

1 inch $=\pm 2$ centimeters
1 mile $=\pm 2$ kilometers
1 pound $=\pm 1/2$ kilo

Unless you are scientifically minded, or a purist at heart, the above equivalents will really do. I make and fly my kites by the above equivalent conversions.

Cesar A. Quinones
Arecibo, Puerto Rico

The point about proportions as the fundamental concept in converting to metric is quite correct. However, "rules of thumb" can have hangnails. The 2.54 cm per inch translation is correct so 2.5 is closer than 2 and no more difficult to work with. If you use the Quinones rule and you have kilometers on your speedometer, you're going to get a ticket.

Readers are encouraged to reply to letters, and we will route them to appropriate parties whenever possible. Address your letters to Kite Lines *"Letters," American Kitefliers Association, 7106 Campfield Road, Baltimore, MD 21207. All letters become the property of* Kite Lines. *The editor may edit letters for publication.* ◇

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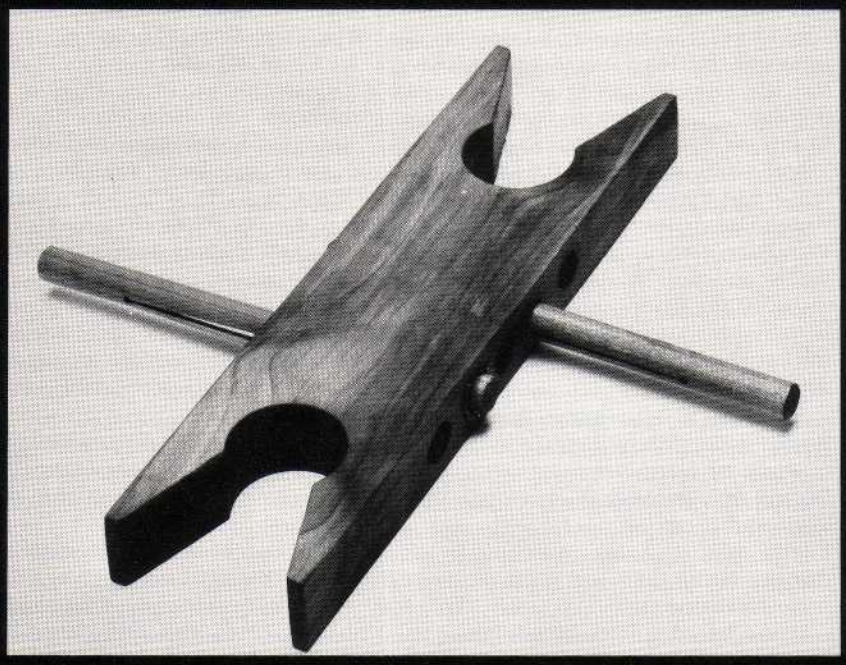

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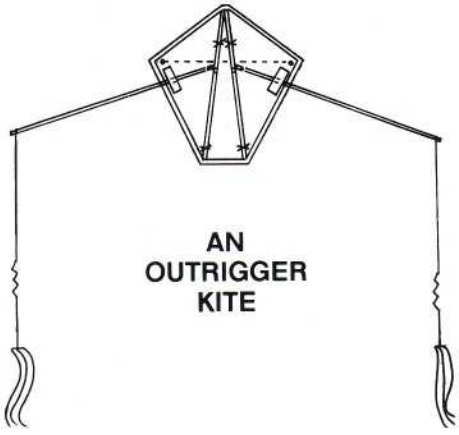
Design Workshop

By Ed Grauel

It is a pretty generally accepted fact that, to fly reliably, a flat kite must have a tail. Also there is good evidence that the flat kite is the only generic type that requires a tail for functional purposes. But little known is that the tail doesn't have to be attached to the kite itself, or that it doesn't even have to be a tail in the strict sense of the word.

Introduce yourself to the use of outriggers attached to a kite, from which are suspended streamers on cords from outriggers.

The kite itself can be made in various shapes and sizes as long as it has two masts for attachment of the outriggers. I use a 24 x 24 in. overall size with sides of 14½ and 18 in., a base of 6 in., and a ¼-in. spreader 8 in. from the top. The outriggers are 36 in. long and are attached to the 3/16 -in. masts 10 in. from the top of the kite on the back. Slots



approximately ½ x 3 in. for the outriggers to slip through are attached 3 in. below the spreader at the perimeter of the kite.

A simple method of attaching the outriggers to the masts is by the use of plastic tubing slit halfway through the center to permit bending. Half of the tube is slipped on the masts, leaving the other half open for sliding on the outriggers. If 1¼-in. pockets are sewn for the masts, it will be necessary to cut 1-in wide openings in the pockets to allow the tubing to come through.

The streamers are 6 ft. long x 3 in. wide and three of them are attached to each outrigger by cords about 5¼ ft. long. A four-legged bridle is attached at the points marked X on the diagram.

The outrigger kite will do some dipping and wandering back and forth, which makes it a lively, attractive and unusual object in the sky. In the suggested size it has a wind range of 8 to 20 miles per hour. ♢

Kites Past: Historic Notes

TRACING JAPAN'S CUSTOMS

By Clive Hart
Professor of Literature, University of Essex, England

Few kite-flying nations have been so possessed as the Japanese by the desire to build larger and larger kites. In the 18th century fliers were already having to borrow ships' tow-ropes in order to have lines of sufficient strength, and in the early 19th century some young people in Okazaki formed a society for the further development of the kite. Throughout the 19th century kites increased in size until, towards its end, the master kite-maker Nagajima Gempei developed a new constructional technique which resulted in the amazing *wan-wan* kite of Tokushima (on Shikoku). Up to 150 men might be needed to launch and fly one. Muller [in *Der Papierdrachen in Japan*, 1914] describes a *wan-wan*, made in 1906, which was 20 yards across and flew a tail 480 feet long. It weighed some 55 hundredweight and needed a 35-leg bridle. Such kites could not, of course, be built and owned by individuals but were the property of the whole population of a district, who were summoned to bouts of kite-building by the ringing of temple bells. The *wan-wan*, which was bowed back to produce stability, was constructed of bamboo spars 12 inches in circumference, and was covered with hundreds of sheets of a special tough paper. Launching, of course, was not easy. The kite was placed against a large trestle and a team of men heaved on the line. Such kites were so big that once they were launched it was often impossible to bring them in, in which case they were left to fall of their own accord when the wind eased, though this usually destroyed them.

Kiteflying festivals are still held in Japan, but they were once much more common and more spectacular. Muller describes the festivals which were held in his time (*ca.* 1910), after the fliers had been driven out of the cities into the fields by the many networks of power-lines which had begun to cover the country. He found tens of thousands of people delightedly taking part. Booths were set up around the contest area and large quantities of food and *sake* were consumed.* ♢

**Japanese kite festivals are by no means extinct; see page 36.*

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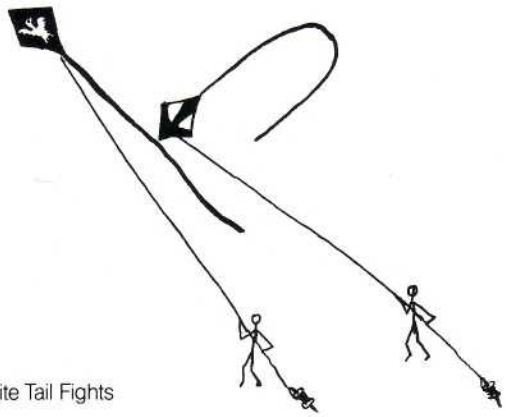

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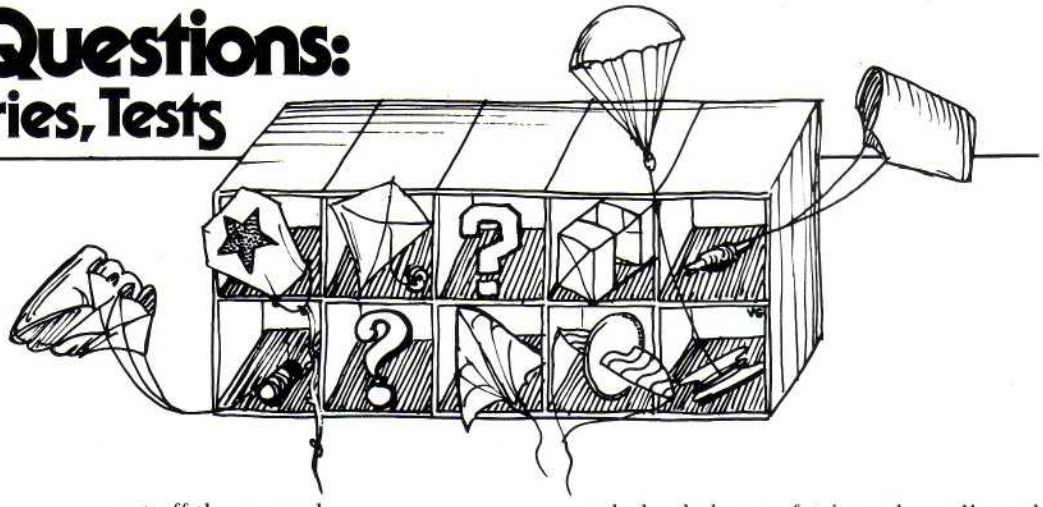


KITE CATEGORIES: CAN WE DIVIDE AND CONQUER?

By Wyatt Brummitt

Kites—kinds of kites, combinations, and permutations of kites—are increasing spectacularly. The question therefore arises, what are the truly basic kites?

The answer, I suspect, depends pretty much on one's attitude toward kites and kiting. To those of us whose pleasure is in the sight and feel of a kite cavorting in the blue, it might be adequate to settle for just two types—kites that fly and kites that don't. Oversimplied?

Okay, so how about establishing two all-embracing categories—flat and non-flat kites? In other words, two-dimensional and three-dimensional. Probably still too simple, because it ignores many of the aerodynamic principles which govern or affect the flight of kites.

Approaching the matter in terms of behavior or function we might establish another pair of "basics": first, kites which fly *against* the wind in a permanent stall and, second, those kites which fly *on* the wind, in the manner of a glider or an airplane. But that becomes absurd when you recall how often you've seen a staller climb right on up to the zenith and a soarer puff and struggle in its effort to gain altitude.

Or we might get a bit more technical and attempt to categorize kites in terms of their basic aeronautical stance, so to speak. Many kites, for example, have a bird-like positive dihedral while others, such as the sleds, maintain a negative dihedral, almost a scooping action. But what do we do, then, with the flat kites which, by definition, have no dihedral at all? Because there are a lot of such kites, any attempt to classify kites in terms of dihedral, tempting though the idea may be, simply cannot get off the ground.

Let's back up, therefore, and consider the more or less time-honored kite classifications. First, of course, would come the ancient and honorable . . .

Flat Kite

Under this head come all the primary two- and three-stick kites, the diamonds, the squares, the stars, most of the Orientals, and many others; they all require stabilizing tails. Even the popular swishing cobra must be included here, for a cobra is nothing but a flat kite whose tail has gone to its head. But what about a rigid, square-celled box kite, flown flat? It's flat, certainly, but must we ignore those vertical sides of the cells, the sides which serve to keep the kite aimed into the wind and contribute materially to its stability? They perform very much as keels do, but I wouldn't have the gall to call a box kite a keeled kite. Would you? The next category most of us agree on is that of the . . .

Bowed Kite

The classic bowed kite, of course, is the Eddy. It has a small, fixed degree of positive dihedral and more or less pocketing. It requires no tail. *But* does a flat two-sticker become a bowed kite when the counteracting forces of tether and wind drive back the wing tips? And is a delta-wing, with its firmly established positive dihedral, simply a bowed kite? A third, generally recognized category is that of the . . .

Box Kite

From Hargrave on, the box kite has meant a rigidly framed combination of cells, cells which may be square, rectangular, triangular, etc., in cross section. But do we also include Mr. Conyne's classic kite? Possibly, if the construction is rigid. But what if the whole shebang of triangular cells and outboard wings is flexibly built, as is the usual case today? We know that the pull of the line and the lift of the wings can be, and are used to maintain the Conyne conformation. But would Hargrave agree? Next comes a modern or contemporary kite, the . . .

Sled

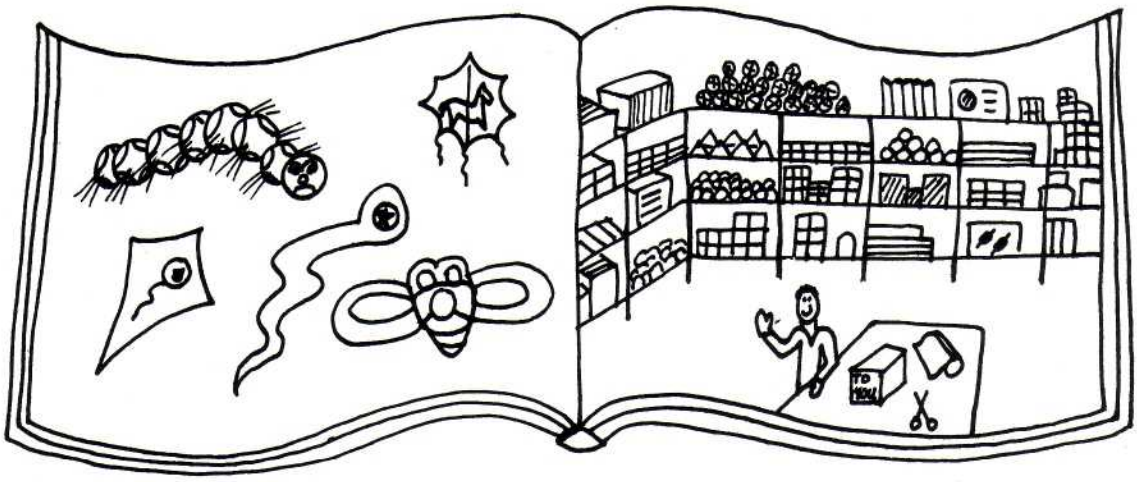
It is an outstanding example of the air-scooping, air-embracing kind of kite. It has negative dihedral and its downward-stretched laterals serve, quite clearly, to provide directional stability. I am tempted to call the sled an aerial catamaran, but I fear that's not quite relevant. It is relevant, however, to observe that the sled is extremely popular (a) because it is so simple and (b) because it has already fathered several variations on its theme. The Grauel Bullet, for example, is a biplane sled, with certain other modifications and innovations. Other variations are almost certain to appear. So the "purity" of the sled, as a basic kite type, may well be threatened. Everyone agrees that there is one great modern kite which has established and still stands in a class by itself . . .

The Parafoil

Yet even the Parafoil, as it takes off and climbs, is in effect an air-scoop, a sort of biplane sled. It is only after the Parafoil has attained a fairly high angle (relative to its pilot) that the aerodynamic qualities and virtues of its wing design become effective or useful. The "purity" of the Parafoil concept, incidentially, is threatened by recent developments which involve variations in the design and placement of the airfoil cells. Another air-clutcher and a blatant case of negative dihedral is our old friend . . .

(Continued)

A story of kites from the kite capitols of the world.



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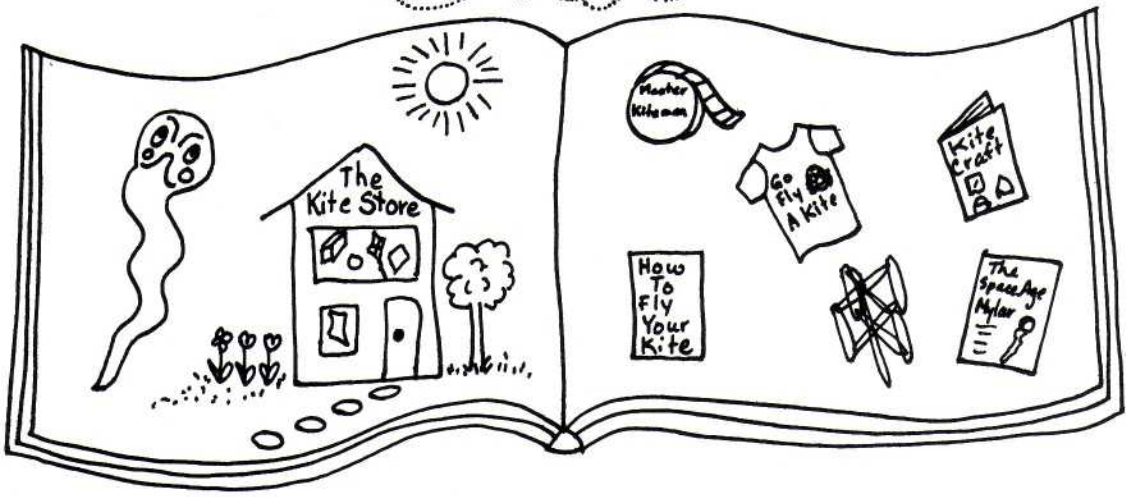

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KITE CATEGORIES

(Continued)

The Parachute

Historically and functionally, the parachute's *raison d'etre* has been to retard the speed of a falling object. But it has been clearly established that a parachute can be rigged, vented, and tethered so that it will rise, kite-like, even attaining a remarkably high angle. If we grant that it is a kite at all, we must also grant its shirt-tail relationship to sleds, parafoils, and all other examples of negative dihedral conformation. To me, the most interesting and beautiful of kite forms is . . .

The Parawing

Technically, I suppose that the granddaddy of this group of kites is Mr. Rogallo, the only kiter I know who has a big wind tunnel practically up his sleeve. Rogallo's basic kite is the product, in a special sense, of the material from which it is made, *i.e.*, Mylar.® For Mylar *holds a crease,* and the creased center fold becomes a firm keel, with the wings on either side held only loosely in position by the shroud lines. In flight a Parawing frequently assumes the aspect of a skinny gull just about to swoop down to dinner. The Parawing itself, I confess, is not my idea of the greatest or the most beautiful of kites, but the family of bird-like kites it has fathered . . . well, I dote on them. The family resemblance is clear, for there's that firm backbone and the out-stretched, positive dihedral wings. True, the wings—as evolution marches on—have become longer and shorter and variously shaped, and the body has grown a ventral fin. Even so, my much-loved deltas and boxed deltas must, from time to time, bow gracefully before the family portrait which has M. Rogallo at its center. A kite category which very much needs further and intensive r & d is that of . . .

The Rotary

But it is necessary, at once, to split the rotaries into two sub-categories: those with a *horizontal* and those with a *vertical* axis. A kite whose rotor spins on a horizontal axis, *a la* Guy Aydlett's big film spool, owes some ancestral duty to Herr Flettner and rather more to M. Bernoulli. And a kite whose rotors whirl on a vertical axis is clearly related to Senor de la Cierva and his autogyro. Further to complicate things, the autogyro's rotating blades are, themselves, perfect Bernoulli airfoils.

So where are we? We have considered some eight kite categories. Thus:

Flat kites	Parafoils
Bowed kites	Parachutes
Box kites	Parawings
Sleds	Rotaries

And, in establishing those eight categories we have further complicated the situation. Because we have shown that no one category is "pure"; inter-relationships are many, confused and proliferating. From the point of view of those orderly souls who find delight in clearly defined classifications—well, things look bad, and they're getting worse.

Others of us may find pleasure in the fact that while a name is only a name, a kite—thank God—is a kite. ▽

Wyatt Brummitt is the noted author of the Golden Guide to Kites, *still the basic reference on the subject. Though he attempts here to untie a longstanding knot, he anticipates rebuttals and controversy.*

Profiles

Paul Garber
Man About Kites at the Smithsonian

By Valerie Govig
Photographs by Anneke Davis

The $40 million dollar building is huge and breathtaking. The newest ornament on the Mall in Washington, DC, is the Smithsonian's National Air and Space Museum. Thousands have poured through it every day since it opened July 1, 1976.

Paul Edward Garber, 77, retired but active Historian Emeritus who was the first curator of the Museum, takes pride in the edifice. But he has one criticism: "It isn't big enough."

The growth of flight and space technology is reflected in the range of exhibits and films on hand here – more than enough to fill a day if you're in Washington. Visitors should expect to spend time here – and not regret a minute of it. The wonder: that man has done so much in a span that is merely a lifetime. And if any one man can be said to represent this era, it must be Paul Garber.

Yet there are gaps in the display – and kites are one of them. No one is more aware of that than Garber, whose life has been entwined with kites, and all things aeronautic, from his youngest days.

"My first recollection of a kite was when I was five years old," Garber began. We were talking in his small carpeted office (opposite the aerospace library on the Museum's third floor). "I was just five; it was on my birthday." At a beach party in Garber's native Atlantic City, NJ, his uncle presented him with a deltoid kite bigger than he was on which "Paul" was painted in small red letters at the top, but then (in Garber's words), "across the widest part of the kite, from port to starboard, was *his* name, which was *my* middle name – E-D-W-A-R-D, in letters about a foot high! Below that was a great big number 5." His uncle wrapped the string around Paul's chubby little fingers and turned him loose, "but I wasn't going to let go! Off I toddled across the beach, with this kite pulling me – I was heading for Europe! Just as I was thrashing in the surf, my uncle caught me and carried me back, kite, string and all."

If you don't know Paul Garber you might think this was just an isolated incident, but it's one of a series of experiences with kites and aircraft that have never failed to excite him. Even today as we talk among the mementos and organized clutter of his cozy office, Garber's eyes light up with boyish enthusiasm. A short, stocky man with graying hair, Garber's manner mixes gentle dignity with zesty, self-effacing humor. He speaks with amazing total recall of everything he has experienced, a tremendous fund of knowledge, and a highly descriptive style. Warming to a subject that is central to his life, he folds his hands and looks up, into the clear sky of his memory:

"Then it was in 1909 that I saw Orville Wright fly. By that time, we'd moved to Washington. This particular morning in the newspaper I'd seen an account of Orville Wright flying at Ft. Myer, VA. So I asked my father if I could have some carfare – I think it was 50 cents round trip – and as I got out of the trolley car I could hear this *sound.* And here came this airplane. Well, I'd never seen an airplane before." Garber's hands are moving. "It was like an enormous kite that had a noisy engine in it and two propellers whirling around and two men sitting in it. It came and flew overhead and then turned and went to the far end of the field and then came back again. I just stood there, transfixed.

"Then I met a photographer, and I offered to carry one of his bags. Well, that got me a little closer to the airplane, after it landed. I later learned that the photographer was Winfield Scott Clime. I didn't know then who Orville and Wilbur were or who Charlie Taylor [their mechanic] was, but I realize now that those were the persons I was seeing.

"Once in a while I hear of someone who has seen those same flights that I saw, in July, 1909. The airplane was

purchased on August 2nd by the U.S. Army. That became the first military airplane in the world. And we have it now downstairs in our exhibit. Occasionally when I'm in that part of the building I look at it and recall my first sight of it.

"Later I made a model of that airplane and tried to fly it. I can't say that it flew, but it lost altitude slowly! I wish I had asked Orville Wright more questions about control. There is still much to learn."

Another boyhood memory stems from the days when his family lived on Connecticut Avenue near the home of Alexander Graham Bell.

"He would walk by, six feet tall, with a white beard, black coat, very imposing. One day I was out front—we had a big yard—flying a kite. Well, Dr. Bell came along and said, 'That kite isn't bridled properly.' He pulled it down and had me hold the kite while he rebridled it, and sure enough when he launched it again it flew better. Then he patted me on the head."

Garber's interest expanded from kites to model airplanes, and he started a club for model airplanes and kites in grammar school.

"This continued throughout my high school time, because persons kept wanting to join this club, and it became quite popular.

"Then in 1915 I made a glider—a man-carrying glider. It was a copy of the model of Octave Chanute's glider which was in the Museum. I never had much in the way of spending money, so when my friends were going to the movies, I'd sort of say goodbye to them and come here to the Museum, and see the displays. One of my friends was a son of a regent of the Smithsonian, so when I was with him we could sometimes get behind the scenes and go to some of the shops, which I always enjoyed. Mr. Maynard, who was the Curator at that time, let me see this

Paul Garber talks to *Kite Lines* in his office.

model of a glider (and I saw it as a potential kite) and take the dimensions of it. And it did fly as a kite."

Then it occurred to Garber that a kite larger than four-foot size would be much more fun—for taking rides. So he made it five times larger, 20-ft. span.

"And that was quite a summer project. I made it of split barrel staves covered in red glazed chintz in my little basement shop—we were living on 24th Street—and when I had it finished I took the parts out in the front yard and assembled it, and then got my friends to help me carry it over to a big empty area with a steep descent at California and Massachusetts Avenues.

"So having a good wind and my friends and all the neighbors' clothesline I could collect, I then backed up against the trees as far as I could, with this glider on my shoulders, holding on to the two struts that I had built into it. Then I called to the fellows to start running, and they pulled me, and I rose as a kite would rise. And as I began to rise these friends of mine were so astounded they stopped running in order to look, and without them running there was no further lift, so the glider just sort of settled back on its tail—and I settled back on mine!" We chuckle.

"And that sort of broke things up. But I repaired it in the next couple of weeks and then we tried again.

"Again we had a good wind, and I said, 'For goodness sake this time keep on running.' So they did. And I rose, oh I'm sure it was about 10 miles high, but probably all of 40 feet if that. And that way I was kite-lifted across the field. Then when they got to this rather steep bank, they sort of fell down that and it gave me a bit more pull, so I glided above their heads and across the street, over the trees, and landed in the field on the far side.

"Well, that was a lot of fun! So we did that I guess about a dozen times, in maybe two or three weeks."

The thrill of flight, especially rare in that day, had fixed itself in Garber's life. Soon after that, Garber was in World War I, and afterwards he entered the Air Mail service, when it was just beginning.

His Air Mail stories are a chapter to themselves out of the Garber portfolio. Though he learned to fly, he was not one of the regular pilots, but says, "They used to call me Chief Slave, because I'd turn my hand to 'most anything. It was a wonderful group." When the Air Mail started flights between New York and Chicago, requiring Garber to move, his father became quite ill, and Paul returned to Washington. When his father became better, in 1920, Paul began his career at the Museum.

"I started here in a very low capacity," Garber confides, "what they called a Preparator. The salary was $700 a year! My job was to repair and prepare material for displays. But my heart was in aeronautics. Whenever I had finished an assigned job, I would go off on the making of something aeronautical."

Garber was working on a temporary three-month appointment, and when his assigned work was done he continued without pay making a scale model of Leonardo da Vinci's ornithopter from the master's drawings in the Smithsonian library. As he stood on the ladder displaying it, a "nice old gentleman" came along and asked, "What's that?"

"Well," Garber said (imitating his own breathless elocution), "Sir, this is a scale model of the ornithopter of Leonardo da Vinci who was a great Italian genius, pioneer of all science, lived 1452 to 1519 and had many wide interests, a great varied wonderful mind—a wonderful artist—." He showed him how the model worked, gave his name, and explained that he was out of a job and doing this voluntarily. "I'm proud to have worked here," he said. Then he went back to the shop, but before he could leave, the Chief Clerk, Mr. Harry Dorsey, came in.

"He said, 'You're Garber?'

"I said, 'Yes.'

"'Been working here without permission for several weeks, I understand.'

"I said, 'Oh, yes, Mr. Dorsey, but I'm leaving now, just leaving right now, Mr. Dorsey, I'm sorry.' I thought sure I was going to get fired or put in jail or something.

"So he said, 'You sign up for the Civil Service examination for this position and you see the Treasurer, and he'll pay you. And meanwhile your temporary appointment is extended until you've taken the examination.'

"'Oh,' I said, 'You mean I can still work here, Mr. Dorsey?'

"'Yes.'

"'Well, ' I said, "how in the world is that?'

"He said, 'That's the Secretary's orders.'

"I said, 'The Secretary? You mean the head of the Smithsonian Institution, Dr. Charles Doolittle Walcott?'

"'Yes, his orders.'

"I said, 'Goodness sakes, how did he ever hear of me?'

"He said, 'Well, he told me he'd been downstairs talking to you about Leonardo da Vinci for the last half hour!'

"So that's how I got my job. I was hired for a temporary appointment for three months and I've been here 56 years!"

Garber has worked in all phases of Museum operation, and in all grades on the way up, meanwhile completing his college education in order to move from sub-professional status to professional and curatorial.

During this time, he was married, and as his three children were growing up he taught them how to make kites. This activity hasn't waned, for he has since become a grandfather to nine and a great-grandfather to five children. Garber became the Boy Scouts examiner for the aviation merit badge. He stresses, "The number one requirement was that the applicant shall have made a kite that will fly." Garber also authored the Boy Scout book of 1931, *Kites and Kiteflying.*

When World II came along, Garber was called into the Navy as a Commander. Aboard ship he noticed that the gunners were not getting good practice at handling and aiming their weapons before enemy attacks occurred. All they had for target practice were clouds. Garber thought that a kite could be an excellent target, especially if it were controllable to simulate aircraft maneuvers.

Accordingly, he worked on a dual-line Eddy design which could be flown

by any sailor with a bit of training to do loops, dives and figure eights. In test flights before director of the Special Devices Division Captain Luiz de Florez, Garber wrote the name Luiz complete to dotted *i*, in a kite performance across the sky. The project was approved.

Stenciled with Japanese Zeros, Navy Target Kites were mass-produced under Garber's supervision, and issued to all ships in all stations. Over 350,000 of them were made, and Garber spent most of the war time on that assignment exclusively. Only a few of those kites remain today as collector's items. Garber takes pride in the marksmanship skills the kites honed, and in one incident where lives were directly saved. Gunners on a carrier were stationed in their bays at target practice when the ship was suddenly attacked by real airplanes. Because the gunners were already in position, they were ready to respond quickly as they never could have done had they awaited a call to general quarters.

At the end of the war, General Hap Arnold and Senator Jennings Randolph had an idea that there should be an Air Museum. Arnold gave orders to preserve one each of all significant aircraft of World War II. Garber recalls, "I knew Jennings Randolph, so I helped a little bit in the wording of the public law that established this Museum. That was Public Law number 722 of the 79th Congress, signed by President Truman on August 12th, 1946."

Garber became Curator, Head Curator and then Senior Historian. Though officially retired at the age of 70 by Civil Service requirement, he still visits his office in the Museum almost daily. He has important work to complete.

One of his projects is the Smithsonian kite collection. Although there are no immediate plans for a Museum kite show, Garber has been encouraged to continue collecting and to draw up a proposal as a basis for a future display.

Garber has been collecting kites since he first arrived at the Museum, in 1920, 14 years after Prof. Langley died. Langley had been Secretary of the Institution and was himself interested in kites as a means of developing man-carrying aircraft. Many of the innovators in aviation history made kites to test various aerodynamic features. Garber, looking back, relishes one particularly lucky day.

"When I first came here, I found, over in [Langley's] old shop, several kites, not complete. One was a very unusual triangular box kite cell, but the top surface had an airfoil, so he was using kites as a means of testing the lift of curved surfaces. Another one was an octagonal cell. Another one was a triplane, with extreme stagger—one of his experiments."

More recently, Garber has sought out the rare and significant deliberately.

"I got in touch with the Weather Bureau and they gave me what I guess

was just about their last kite in stock." It's a 1921 model.

Showing sleuthing talent, Garber searched for kites by William A. Eddy of Bayonne, NJ.

"I wrote to the Bayonne Chamber of Commerce and they told me his daughter's address in California, and she gave me some kites for the Museum. After repair, we will have an original Eddy kite."

For the Museum, Garber has acquired kites from Turkey, Korea, the Philippines, Japan, Ceylon and other places. An Air Force pilot friend flying over Viet Nam discovered and acquired from a farmer in war-torn fields a magnificient 64-in. bird kite weighing a mere 8 oz., with shapely, flexible bamboo body, intricately painted wings and silvery foil beak and talons. Several Chinese kites in the collection were in need of repair. An artist who had volunteered for the task recently died.

"Time is such a problem with me," Garber remarks. "I have so many things to do."

He is called upon to lecture, advise, preside, attend endlessly. When the Alexander Graham Bell Museum was begun in Baddeck, Nova Scotia, Garber was asked to help. His valuable reward: 16 original cells from an early Bell tetrahedral kite for the Smithsonian collection. Recently Garber lent 22 kites to the display in the New York World Trade Center. He has always been active in his church, and now serves as President of the Early Birds, an organization of pioneer pilots who flew solo before Dec. 17, 1916 (prior to the First World War). Garber is developing a series of films on the history of flight, including a segment on kites. He is also writing some books along similar lines.

But Garber is most prominent in his well-known public role as Director of the Kite Carnival, an annual springtime competition on the grounds of the Washington Monument sponsored by the Smithsonian Resident Associates, the National Capital Parks Commission and the DC Recreation Department. This event was begun in 1967, and is simultaneously the most gratifying and most consuming activity the Garbers perform. Yes, Garbers—plural. For if it were not for his wife Irene, it is doubtful the program could be nearly so successful.

It began this way. One summer afternoon in 1966, the Secretary of the Smithsonian, S. Dillon Ripley, was walking with Paul Garber on the Mall and remarking on the beauty of the place while regretting its disuse. He asked Garber for ideas on how to bring people outdoors to this matchless area. Garber suggested a kite contest—a carnival of kites.

"Good," said Ripley. "You're in charge!"

That was the start of the Garbers' great annual labor of love and a model of well-ordered kiteflying. That first year there was also a display beforehand of over 60 kites hung above the elephant in the National History Museum. The display included several historic kites, but over 30 of them were built especially for the occasion by the Garbers. In this duty Mrs. Garber gradually became as dotty about kites as her husband. Buttons (as Mr. Garber calls her, and she's apt to wear a hat covered in both the pin-on and the sew-on kind) was practically buried in kite materials as she churned out kite covers at the sewing machine for months before the display. Perhaps her finest hour in kitemaking arrived when she fashioned a copy of Benjamin Franklin's kite, made as authentically as possible like the kite Ben made from a silk handkerchief. Buttons hand-hemmed the cover all

around. When Garber asked her why she hadn't used the sewing machine, she replied that the sewing machine hadn't been invented when Ben Franklin flew his kite!

The same attention to detail appears in the Kite Carnival, planned by the Garbers every season to be improved over the year before. The dates vary to fit around the Cherry Blossom Festival, but on successive Saturdays in March and sometimes April, there is a lecture, a workshop and then the competition. The activities have made the Garbers familiar figures in the media in Washington every spring.

The ripple effect of a good kite day is not always detectable on the occasion itself. Just one example of permanent kite victim is Craig Stratton, who built a kite for the Smithsonian that worked so well he decided to make a business out of it. The Stratton Air Engineering Co. today is one of the big success stories in the proliferating field of kite manufacturing.

For all its scholarly standards—or perhaps somewhat because of them—the Smithsonian's atmosphere is generally larky. Joy prevails.

"I want to emphasize fun," Garber states. He recalls one of the funniest kites they ever had, called Grandpa's Underwear—with arms and legs and trap door hanging down in back, flapping in the breeze.

Yet the largest measure of cheer radiates from Garber himself. On a small platform in the center of the scene, microphone in hand, he

comments appreciatively on most of the kites as they take turns flying, announces lost children, streams forth an unlimited supply of historic anecdotes, makes decisions in problem cases, and sometimes, when the mood strikes, breaks into song (usually the old chestnut variety).

Here is a man with so many "wings" pins he couldn't wear them on his lapel, so he let Buttons attach them to his watchband. You would think he would be ready to take a rest. Who wouldn't feel satisfied with a life of 56 years' service to the Smithsonian? In addition, Garber has received many honors, including a citation and medal "For exceptional service as Flyer, Historian, Collector, Conservator, Educator. In recognition of half a century devoted to the increase and diffusion of knowledge of the history of flight." The certificate is signed by S. Dillon Ripley and dated 28 February 1969. Eight years ago.

Garber once was asked how long he planned to keep on directing the Kite Carnival.

"Just as long," he said, "as I can be wheeled out there to do it." ◇

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The Kite-A Fantasy in Flight

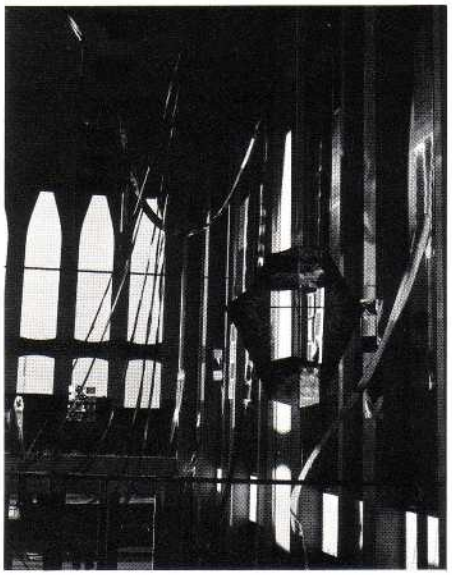
the twin towers of New York's World Trade Center fill with the rapture of the heights

Story and Photographs
by Paul Edward Garber

In the lobbies of the tallest structures of lower Manhattan, there opened on December 10, 1976, an impressive display of about 150 kites in a wide range of sizes, types and nationalities, forming a colorful, beautiful and educational exhibit.

Many of the kites were suspended in the wide, high spaces extending from the ground floor to the 75-foot ceilings, while others were on the walls or in cases arranged about the mezzanine. Several films on kiteflying were shown in alcoves. The labels and photomontages provided a very informative background as well as a current appreciation of the wide range and many practical uses of kites.

Most valuable items were several of Dr. Alexander Graham Bell's original tetrahedral kites which were lent by the Bell Museum at Baddeck, Nova Scotia. That Museum was constructed on the estate of the renowned pioneer of the telephone, airplane, and countless other inventions and processes, as illustrated in the Museum built in the form of an elongated tetrahedron. The kites displayed at the Center showed two four-celled types, one being of triangular cells and the other of tetrahedrons; and two wide-span shapes each assembled from many tetrahedral cells.



Above: **Colorful Guatemalan kites and a whale snake kite humanize steely New York.**
Upper right: **Snakes and splendors on display.**

Another original kite was a Navy Target Kite developed by Garber during World War II as a ship-to-air gunnery device, maneuvered by its flier to imitate the evasive actions of enemy airplanes.

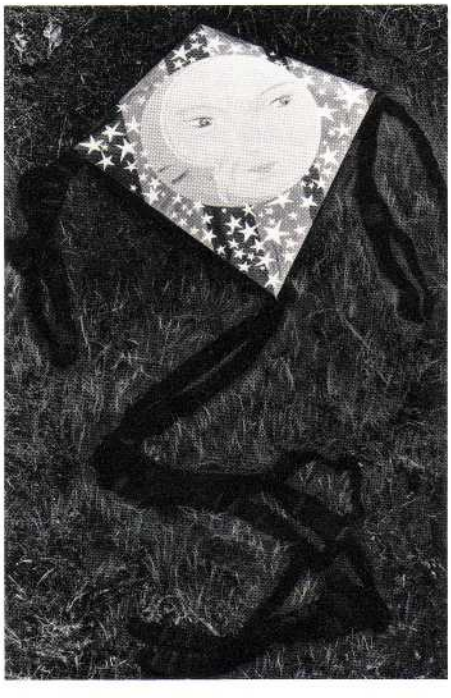
Most impressive were several large 10 to 25 foot diameter Guatemalan kites, very colorful with their multiple arrangements of triangular markings radiating in concentric circles from the center. These are made by the natives of that nation as a tribute to the dead, constructed by the heads of families with the help of all members, and flown over the graves of the departed on All Saints' Day.

At the conclusion of the flying, the kites are burnt on the graves, the rising smoke carrying the prayers of the mourners heavenward. Fortunately for the viewers of this exhibit, the kites shown were not consumed. They are very deserving to be preserved, representing hundreds of hours of devoted efforts. *(Continued on page 26)*

Painting in the Sky

a grand exhibition of kite artistry is assembled in a Paris mansion

By David M. Checkley
Photographs by
Jean Louis Bloch-Laine



The Festival d'Automne a Paris presented what is undoubtedly the best kite exhibition staged to date at the Fondation Salomon de Rothschild in Paris, from Sept. 15 to Oct. 24, 1976.

The show covered some 500 square meters and included over 250 kites from France, Germany, Holland, England, Japan, India and Southeast Asia.

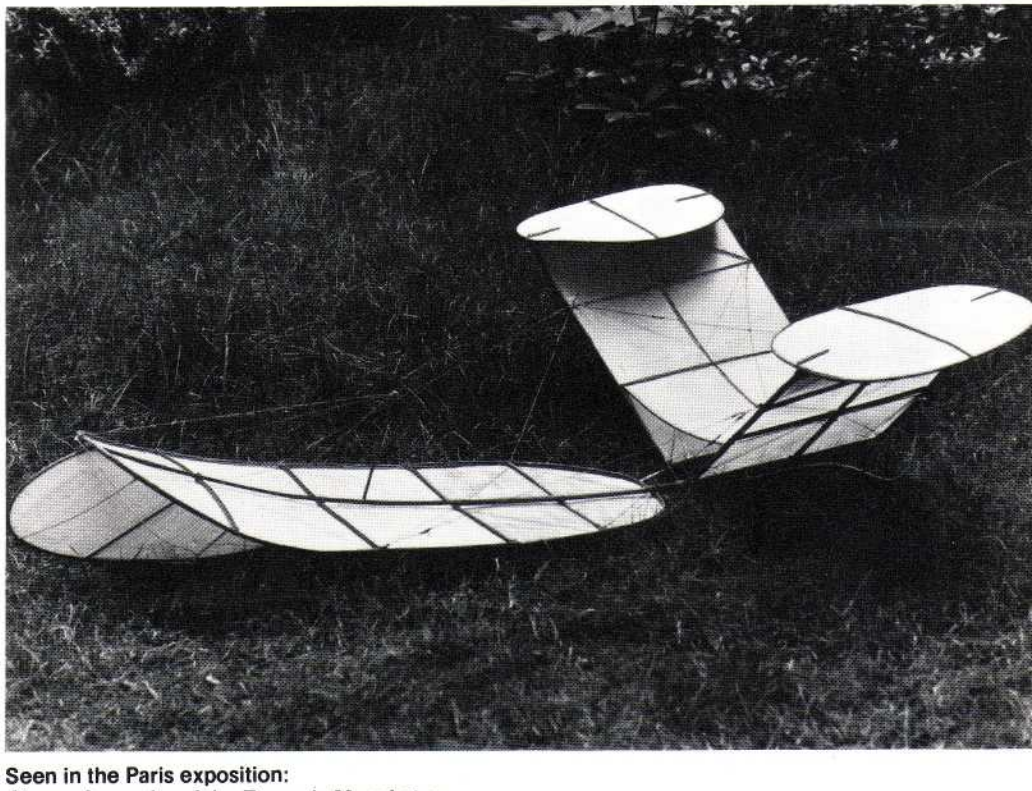
The Festival d'Automne a Paris is an annual program sponsoring a large variety of cultural events, including both the performing arts and visual arts, such as performances by outstanding orchestras, soloists, and acting groups as well as exhibitions of paintings and sculpture. The budget for the kite show was approximately $40,000.

One feature of the exhibition was a display of unique long-tailed kites made by French artist Jacqueline Monnier, and a superb audio-visual presentation showing the flying of her kites, photographed by Louis Bloch-Laine and with a soundtrack by Guy Noel. Mlle. Monnier makes square cloth kites with separate tail streamers in the same material, about 15 in. wide by about 80 ft. long, which undulate in the air like dragon kites. One series of her kites, for "painting in the sky," includes 15 to 20 identical kites with subtle variations of the same colors which are flown together with remarkable beauty. Others are done in primary colors superimposed with painting and cutouts filled with clear plastic.

The kite exhibition was organized by Mme. Dominique Pallut, who is responsible for all exhibit planning and design for the Festival d'Automne. Her principal collaborators were artists Jean-Michel Folon, Guy Selz and Olivier Mourgue, all of whom lent their extensive personal kite collections, Jacqueline Monnier, and AKA member Tom Van Sant from Los Angeles. Van Sant's major contribution was a huge and spectacularly painted centipede kite, which was exhibited in the large entry hall of the Rothschild mansion.

Mme. Pallut commissioned 10 contemporary French and German artists

(Continued on page 27)



Seen in the Paris exposition:
Above: **A novel craft by Francois Monchatre**
Upper left: **Kite by Sabine Monirys**

NEW YORK KITE SHOW

(Continued from page 24)

Festooned above the lobby were many cobra kites, including some in ripply silk by Heloise Lochman, resembling hooded snakes with flared heads and trailing bodies. One of these was described as "the longest kite in the world," its body being in the form of a whale and 175 feet long.

Also on display were some of Tal Streeter's kite sculptures, his noted "flying red lines."

Reproductions showed the ancient history of kites, the earliest representation depicting the dragon-like effigies that were flown by medieval warriors as they charged against the enemy. The one displayed at this show was about 15 feet long, with a fearsome head that snorted smoke from its nostrils as it swayed from side to side.

On a panel, a portion of a wing illustrated the ideas of Leonardo da Vinci for a man-carrying aircraft, while nearby was a copy of the form of kite used by Benjamin Franklin in his famous test to show the electrical similarity between nature's lightning and man's chemical batteries.

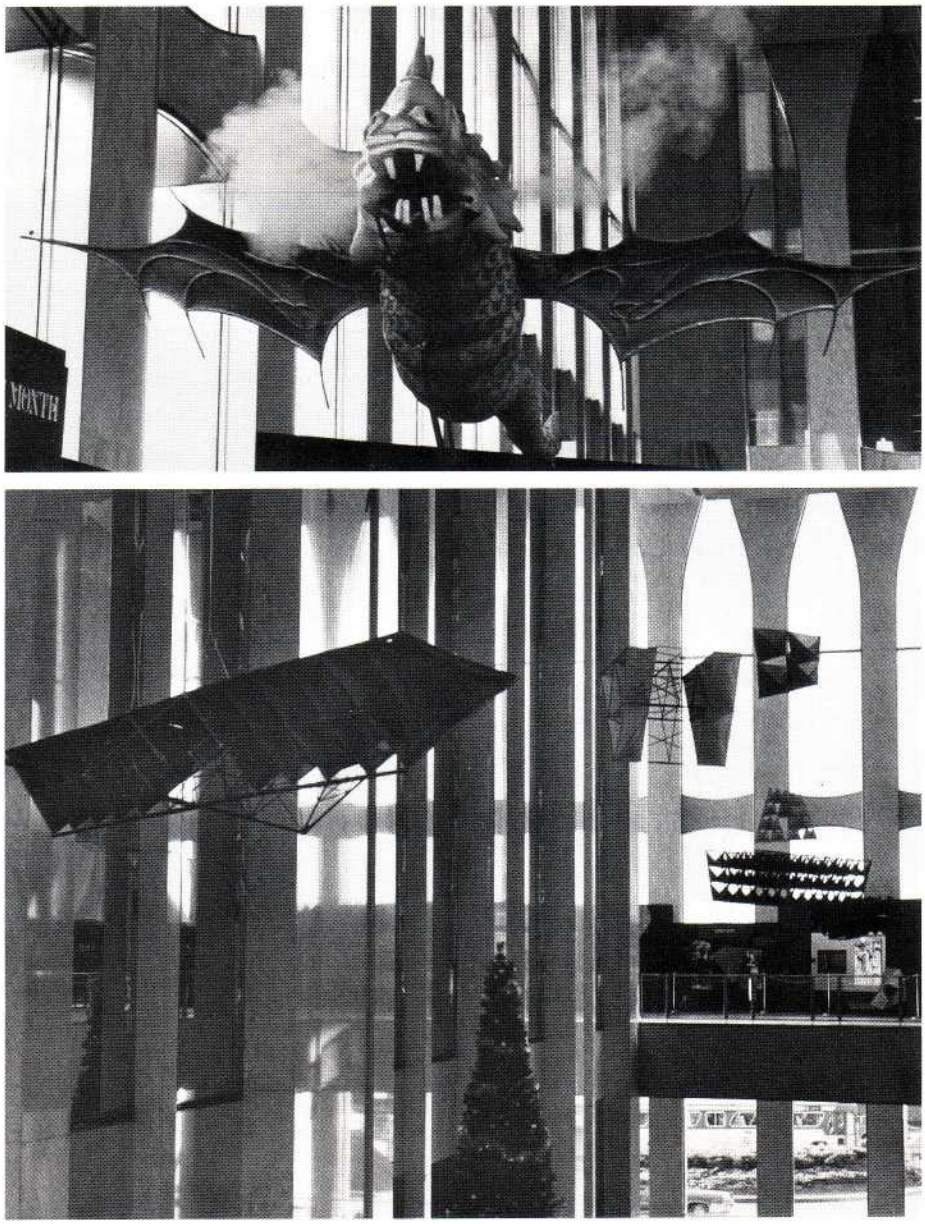
Just about all shapes of early flat-and-tailed kites were shown, including the round-topped "pear" kite and the three-stick "barn" forms. William A. Eddy's deltoid kite, Silas Conyne's triangular-celled winged kite, and Francis Rogallo's Flexikite were included. Box kites included those of forms originated by Lawrence Hargrave of Australia and Samuel Potter of Arlington, VA.

Many nationalities were represented. In front of an ancient print of Chinese kiteflying was a Garber reproduction of one shown in that picture, and nearby were grouped many examples of contemporary Chinese kites.

An exhibit labeled "A Tail of Three Cities" presented kites that had participated in the kite contests held annually in Canada, Bermuda and Washington, DC, adjacent to a display of winners in a competition sponsored by the Go Fly a Kite store, held in New York's Central Park. Japan was included in a group of kites made by Teizo Hashimoto, the last kitemaker in Tokyo. Thailand kites shown were the male and female forms used in "girl-catching" contests; and the famous Oriental story of the thief who tried to steal the golden finials from the top of a temple by rising to their height on a huge kite, was illustrated by a spread-out picturization of that robber holding to the kite with one hand as he tried to grasp the glittering ornament with the other. A famous use of kites to pull carriages was shown by a realistic drawing copied from the contemporary account of George Pocock's *"Char Volant"* and an example of the "arch top" kites he used.

The most impressive exhibition of the maneuverable kites of India was a demonstration at the opening of the exhibit by Dinesh Bahadur, proprietor of the Come Fly a Kite store in San Francisco. In a hall about 100 x 50 ft. where the Westfield, NJ, band had been playing selections for the entertainment of the large crowd that attended the opening cermony, Mr. Bahadur, standing on a central platform, handed a two-stick diamond-shaped kite to his lovely wife who stepped back several feet and held it by its lower point high over her head. Then with a flick of his hand, her husband jerked the kite into the air, let it fall a few feet, jerked it again and fed out more line, and within seconds, by repeated jerks and darts the kite was flown back and forth from near-misses with the balcony, higher and higher, remaining aloft for more than a minute. This expert set a world record for such indoor kiteflying, which now stands at more than an hour and a quarter.

Films shown in the gallery included "The Kite," a 15-minute IBM film about a boy who makes his own kite; "The Master Kiteman," a 12-minute Murray Mintz film featuring Dinesh Bahadur, shown by courtesy of Barr



Impressive kites in the New York World Trade Center show included a smoke-puffing facsimile of a medieval dragon windsock and some original Alexander Graham Bell tetrahedral kites lent by the Bell Museum of Baddeck, Nova Scotia.

Films; and "Icarus Montgolfier Wright," a 20- minute film about flight history, shown by courtesy of Pyramid Films.

Persons associated with the display included Dr. William J. Ronan, Chairman of the Port Authority of New York City; Mr. Guy F. Tozzoli, President of the World Trade Centers Association, Inc.; and Ms. Micki McCabe, Educational Consultant to the World Trade Center. She was chiefly responsible for the design and coordination of the exhibit, and made many visits to other cities and museums to obtain significant kites and learn about kitemakers and fliers. The result was one of the best expositions on the science/art of kites.

Several cities have expressed a wish to borrow this exhibit, so it is possible that those who did not see the show in New York before it closed on January 9, 1977, may have an opportunity to enjoy it in their vicinity. It has also inspired an exhibit in April at the Maryland Science Center in Baltimore's new Inner Harbor. For further information, contact Ms. McCabe, P.O. Box 183, Greens Farms, CT 06436; or Anne Kurtz, Maryland Science Center, (301) 685-2370. ◇

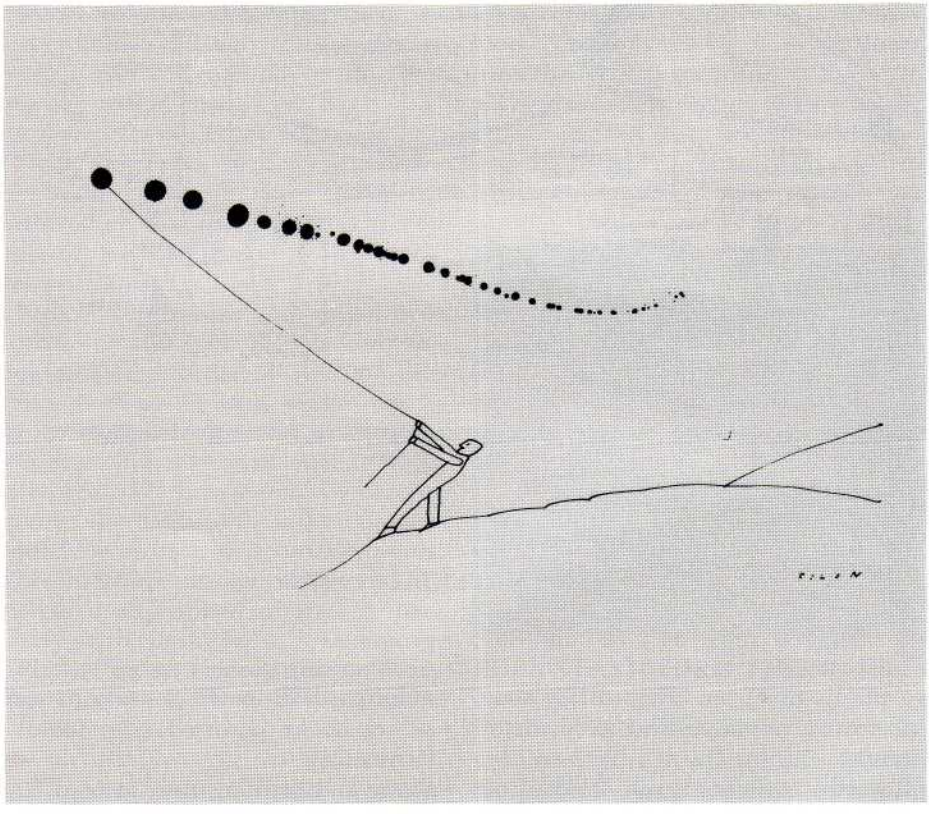
PARIS KITE DISPLAY

(Continued from page 25)

to make kites for the exhibition, with no ground rules except that they should fly. The designs ranged from intricately constructed sculptures to boldly painted flat kites in a wide variety of materials.

The Festival also ordered a number of large Sanjo hexagonal kites from kitemakers in Shirone, Japan. These were about seven feet tall, and were exhibited in the entry hall and hung from the ceiling in the exhibit area. AKA member Tsutomu Hiroi assisted with the Japan portion of the exhibition, having arranged for the Shirone kites and providing photographs and other graphic material. Hiroi visited France during the summer to attend a kitefly and to work with Mme. Pallut and the exhibit designers.

One section displayed a number of English kites made by Nick Morse, Dave Turner, Gabriel, Charley Hulbert, David Pelham, Peter Kouesi, Sean Rawnsley, Mark Cottrell, Elsie Rose, Tony Paine and Brookite, Ltd. The only U.S. kites exhibited besides Tom Van Sant's were a couple of parafoils by Domina Jalbert. ◇



Drawing by Folon from the Festival d'Automne, Paris

Making It with Marconi

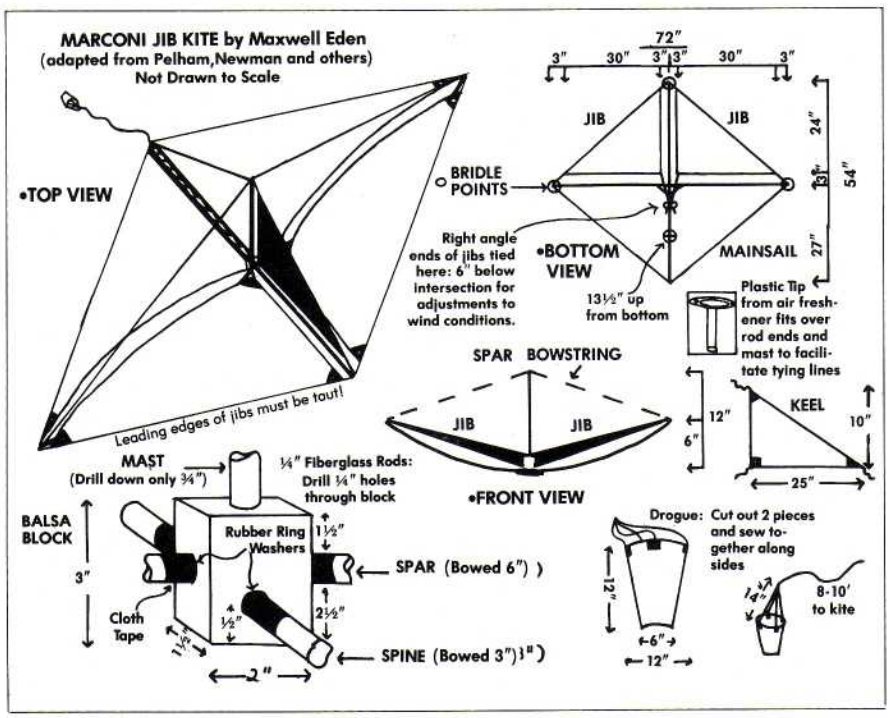
from paper instructions to fabric kite the rule is: translate, improvise

By Maxwell Eden

I was bitten by the "kite bug" this past summer and I understand it is incurable, especially when contracted at 30 years of age; the victim is then doomed to years of joy!

In response to readers interested in the Marconi jib kite, I gladly share my experience. It resulted in a first prize for most original kite at the 1976 New York City Kite Festival.

The instructions concerning the Marconi in both Newmans' *Kite Craft* and Pelham's *Penguin Book of Kites* are short of being clear; however, the dimensions given by Pelham are most reliable. Another variation (keel aftward) of the Marconi was written up by the late C. L. Strong in the "Amateur Scientist" section of the April 1969 issue of *Scientific American.* Clive Hart's 1964 *Your Book of Kites* also contains instructions for building a Marconi, possibly the first written.



Eden says, "Of course, you may experiment with any dimensions, but this flies beautifully."

EDEN'S MATERIALS LIST

- 3 fiberglass rods: 54", 72" and 13"
- 1 balsa block, 1 ½ x 2 x 3"
- 7 plastic tips from "Renuzit" or similar cans, or use fishing pole metal guides
- 2 yards DuPont Tyvek #1422 (for mainsail, 2 jibs, keel and drogue
- cloth tape such as Mystik® tape
- grommets
- 4 rubber ring washers, ⅛" or 3/16"
- nylon cord, 20-lb. test (for bowstrings)
- swivel hooks (assorted sizes for attachments)
- flying and bridling line, at least 80-lb. test

Pelham and Newman recommend using wooden dowels for the spine and spar, 54 inches and 72 inches respectively, no less, which must be bowed. Assuming the authors meant for us kite builders to use ¼" diameter dowels (if the craft is to be bowed without breaking) and that such dowels could withstand the strain of the Marconi in flight, then I would like to know where wooden dowels of those lengths and diameter can be purchased. They're certainly not available in the northeast. Both books also fail to mention that a kite like the Marconi they illustrate, with a high aspect ratio (wider than it is long), needs a tail or drogue for stability. Another problem was framing fittings. I solved my Marconi problems this way:

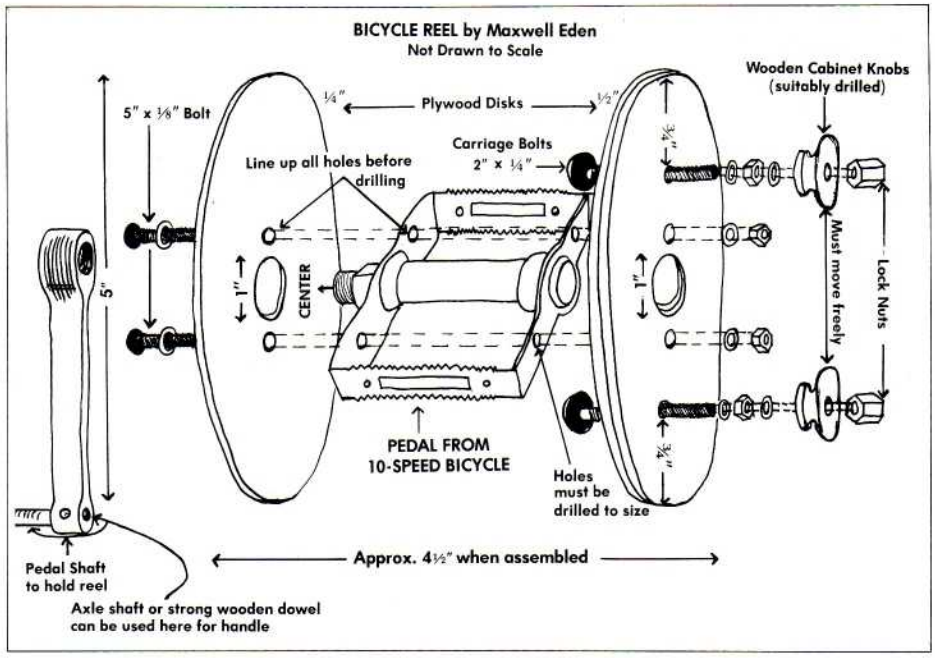
Framing

Fiberglass rod is expensive and not the easiest item to find, so I bought two safety flag poles, the kind put on bikes to make them visible at night. Yes, these poles are fiberglass, ¼" diam., relatively cheap and virtually indestructible. These poles (rods) come in about 8-ft. lengths, so they have to be cut to size. *Be careful*: fiberglass rods are *glass;* don't breathe the dust cuttings. Cut them wearing a filter mask (like painters use) and preferably outdoors. Use a hobby razor saw or a fine-tooth hacksaw. Score the area to be cut all around about ⅛-in. deep and then saw completely through. This avoids splintering and makes a nice clean cut. A special thank-you for information about safely cutting fiberglass goes to fellow kiteman and friend, Caleb Crowell, technical advisor of Will Yolen's *Complete Book of Kites and Kiteflying,* and flier of Indian fighter kites.

Fittings

Attaching the bowstrings, bridle and other lines, such as the cord for making the fine jib adjustments, was another problem. I discovered that the upper inner core of a solid air freshener called "Renuzit" (similar containers

can be found on other brands) can be pulled right out of its plastic housing to find a new home, fitting snugly over the ¼-in. diam. fiberglass rods. With suitable holes made in this plastic cap, you can then easily make all your attachments. An alternative to cannibalizing a bunch of air fresheners is to use the metal guide replacements used on fiberglass fishing poles. These make excellent points to secure all your lines. This method may mean more work, but the finished product will be well worth it.



Eden tells us this reel is "strong and suitable for light to heavy pulling kites."

Sails

My mother did all the expert sewing on my Marconi, using a straight stitch on the Tyvek® fabric, and setting a wide stitch to prevent perforation. Tyvek is a spunbonded synthetic in various grades, well-known to most kite-makers because it is light, strong, stretch-resistant and almost impossible to tear. It is available through the larger kite stores, from L.G. Striegel (advertised in *Kite Lines*), as scraps from manufacturers of disposable clothing, and lastly, direct from DuPont's Spunbonded Products Division. (DuPont is a last resort for a lone kite-maker, since the division is geared to handling large quantity orders.)

And now what for a reel?

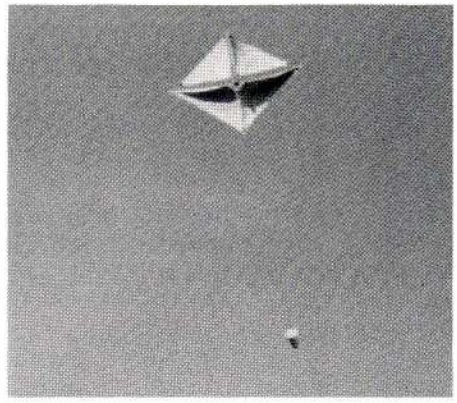
Having built the Marconi, I needed a reel that could handle this strong pulling kite. What spins freely on its axis, is strong, inexpensive (better, free) and can be adapted to make a kite reel? I experimented with plastic spools and the like, but none were to my satisfaction. While rummaging through my tool-box one day, I found a slightly damaged pedal from my 10-speed bike. It works reasonably well, but it still helps to have a friend around when you want to haul her in. A braking system to slow down or stop the kite from taking out more line is missing; I haven't come up with one I like. Maybe you AKA members have some suggestions.

EDEN'S TIPS ON ASSEMBLY

- A small V must be cut in top of mainsail for easy tying of nylon cord from bottom of spine to intersection; this gives uniform shape in flight (see broken line on mainsail top view). Strip of cloth tape bisecting mainsail prevents cord from cutting through Tyvek.
- Tyvek must be hemmed and tips reinforced with cloth tape; then insert grommets through tape to facilitate tying of jibs and mainsail to rods. Remember to add about ½ in. to all measurements on the Tyvek for seams.
- Since the Tyvek sections are easily removable, you can dress the frame with other fabrics (cotton, rip-stop nylon, etc.) like a suit with several pairs of pants.
- Rubber ring washers are rolled over both spine and spar. Plan before putting on so that order of insertion into balsa block along with plastic tips is in *sequence.* Washers aid in keeping rods from moving out of place in flight or in a fall. Washers should be fit snug against the balsa wall, and cloth tape added for an inch or so after washers. This indicates proper setting, easily visible if adjustment of rods is necessary on the flying field.
- Plastic tips are necessary for every line attachment. They are placed as follows:
  - on mast
  - on each end of both spine and spar
  - two on the lower half of the spine, one 6 in. from the intersection and one 13 ½ in. from the bottom.

These last two will require you to drill through the plastic retainer so that they will slide down the rod. Once in place, they will not move. Holes can be made with a sharp nail all around the plastic retainer (four equally spaced is sufficient) for tying guidelines, attaching mainsail and jibs and finally for the bridle, which should be about twice as long as the kite's width and meet in a loop approximately ⅓ of the way down from the front of the spine.

- The spaces between the jibs are marked at 3 in., but these are approximate. As long as they are equally set on both jibs you will not have balance problems.

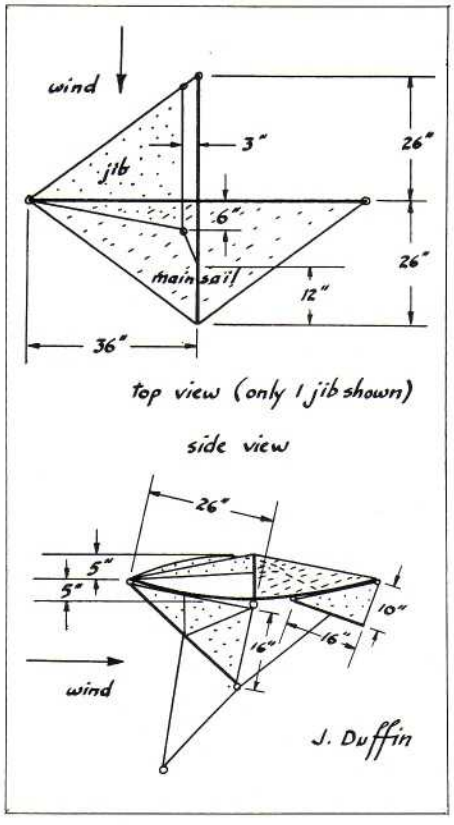


EDEN'S LAST WORD: FLYING

Finally, this kite pulls fairly strongly until it adopts a steady attitude of about 60 degrees. Have someone with you when you set sail. Leather gloves are a must. *Bon voyage!* ◇

A Modified Marconi

By Dr. James Duffin
Associate Professor, University of Toronto



I was intrigued by the Marconi kite and built one in 1970 when I used to kite with a group at the round pond, Kensington Gardens, London. I am still flying this kite.

It is modified from the original in two ways. First, the rudder is suspended below the kite rather than above in order to avoid the awkward structure of a vertical stick; and second, the jibs are extended to overlap the mainsail in the fashion of a genoa jib on a sailboat.

The material used was nylon cloth so that the jibs could pocket and shape themselves into a full-bellied sail although careful attention had to be paid to matching the cloth bias symmetrically. The jibs were hemmed and reinforced with cotton tape with a framing line of non-stretching linen cord (upholstery thread) sewn in.

At each jib corner, I sewed in a metal ring firmly attached to the framing line. The mainsail was made in one piece and attached to it was a tube of wide cotton tape extending the length of the keel. The framing line for the mainsail was threaded in one piece with both ends left free at the after end of the keel. Rings were sewn into the outer corners of the mainsail.

The keel and cross strut were made of duraluminum tubing ¼-in. outer diam. and 5/16-in. outer diam. respectively, but appropriate wooden doweling would do just as well. The cross strut is made in two halves which fit into a 6-in. long center piece of 5/16-in. inner diam. tubing bent to form the dihedral. In this way the kite can be disassembled and rolled up on its keel. The outer ends of the cross struts are slotted to receive the rings from the mainsails and jibs as was the forward end of the keel.

To give the kite its correct shape and keel curve, assemble the kite and then tighten both the forward keel fastening of the jibs and the after keel fastening of the mainsail framing line until the correct keel bowing has been achieved with symmetry, and then tie permanently. The free jib ends are tied to cotton tapes which are fastened to the keel tunnel, and these may be adjusted to suit wind conditions.

The bridling and rudders shown in the drawing work well, but I am sure that many other designs could be used. The rudders are hung from the keel by their corners only, with free-floating ¼-in. wooden dowels sewn into their leading edges.

This kite flies very well in low winds and the jibs are in effect a delta wing. Theoretically at least, the jibs are supposed to direct air flow across the upper surfaces of the mainsail and provide extra lift.

One difficulty in flying may be encountered, as with the deltas, and that is a downward glide forwards with jibs flapping. This can be avoided by making sure that the keel is correctly curved and the jibs are not fastened too loosely. Another way is to make sure the flying line is kept taut, ready for a corrective jerk.

I made another Marconi with a 6-ft. span and only 1-ft. keel at one time, and although it flew well it always had a diving tendency which meant constant vigilance.

Those who are tired of flying deltas as a low wind kite may find this Marconi an interesting alternative. ♢

Hot Item in Kite Building:
The Glue Gun

By Arthur Kurle

Drawing by Linda Kobitz

When the hot glue gun became available to home workshop hobbyists several years ago, it was not hailed as a great new advance for wood workers. The nature of the glue itself and the very short working time it allows make it useful for joining only rather small pieces of wood.

These very shortcomings, however, make the glue gun highly useful to the kite builder, especially if your taste runs to complicated kites with lots of sticks.

A glue gun consists of a handle, an electrically heated melting chamber which is thermostatically controlled, and a nozzle which has an automatic check valve. Glue, in stick form, is fed into the gun, as needed, by thumb pressure, from the rear. Guns are available in most hardware stores for $5 or $6. Glue sticks (a special grade of polyethylene) cost about $2.40 for 60 sticks.

The biggest single advantage in using a glue gun for kite building is the saving in time it allows. Hot melt glue does not dry or cure as glue usually does; instead it hardens as it cools; and this takes less than a minute. As an example, a rigid Conyne (French war kite) which has 15 sticks and 12 joints can be built in about an hour and a half, including the covering!

Actual construction goes something like this: Plug in the gun and wait for it to heat (about two minutes). Squeeze a small amount of glue onto the end of one of the sticks to be joined and immediately touch it to its mating stick; hold in place about 20 seconds until it starts to set. During this cooling period the sticks may be wiggled or aligned to exactly where you want them. When the glue has hardened enough to hold the stick, go on to the next joint. You will find the glue is very tacky and develops strength rapidly as it cools.

Continue on in this way until all the joints are lightly glued together. Then go back to the first joint and add more glue. Use more glue this time, but not enough that the first application is re-melted. After the third time around, you will have neat, slightly flexible, and strong joints. If you want to get fancy, you can use the nose of the gun to re-melt a little glue on the surface and smooth out any lumps or rough spots. Also, any excess glue can be removed at this time with a small piece of clean stick.

This re-melting capability is an important advantage; broken sticks can be replaced easily in just a few seconds, and likewise, if you are an experimenter (aren't we all?), sticks can be quickly changed or moved. You will find that the ability to build quickly, together with the new-found freedom to change things, will alter your whole approach to kite building.

A few words of caution:

• Sooner or later, if you use a glue gun very much, you will get some hot glue on your skin (most guns dribble a bit). If this happens, you almost certainly will get a first or second degree burn. The only defense is to cool the glue immediately; you can't wipe it off fast enough to do any good. You can save yourself by dunking your hand in a bowl of cold water which you have had the foresight to keep handy on the work bench. Because of the burn hazard, glue guns are not suitable for young children to use.

• Glue guns are definitely not lifetime tools; I have worn out or broken three in about four years. The easiest way to break one is to drop it on a hard floor. To obviate this, wrap the cord around something so that if it falls it can't reach the floor.

• If you should leave your gun plugged in for several hours without using any glue, you may find that at the next use the glue has become thick or stringy or both. If this happens, run some fresh glue through the gun (maybe as much as a whole stick) until the glue clears up and runs freely again. Throw the stringy stuff away.

• Be careful about storing kites in very hot places (attics or car trunks). The glue will not melt but will soften enough that cold flow (warm flow?) of stressed joints may take place after several hours.

• Don't buy any but the simplest and cheapest. Fancy guns, which boast features like three heats, or specially shaped glue sticks, or trigger feed, are not worth the extra money.

So up and at 'em, glue gunners; there's a whole new world out there! Bring on those big tetrahedrons and 50-element dragon kites! ♢

ART KURLE is an engineer who makes innovative, prize-winning kites. His best-known design, the Four-Masted Schooner, appears both right side up and upside down in the Newmans' book Kite Craft.

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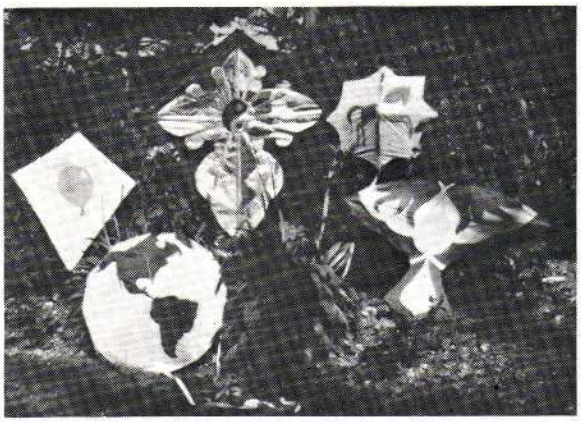

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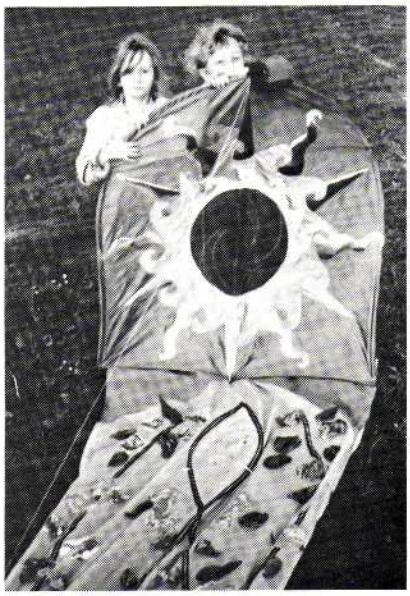

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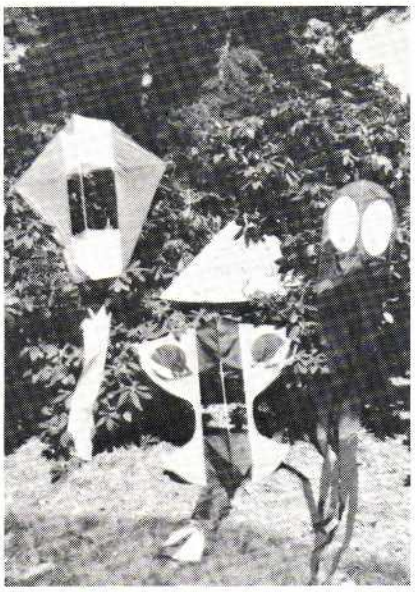

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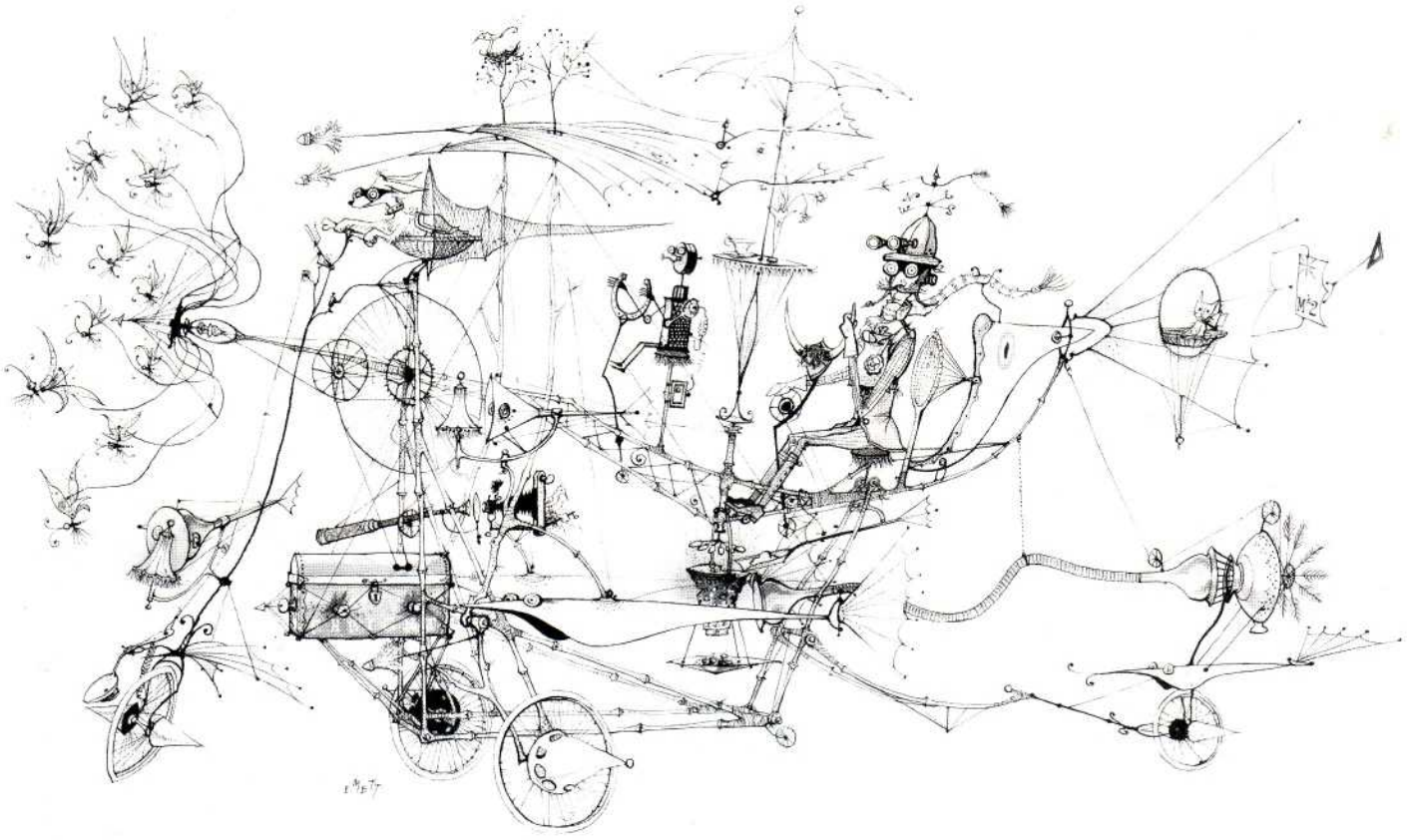
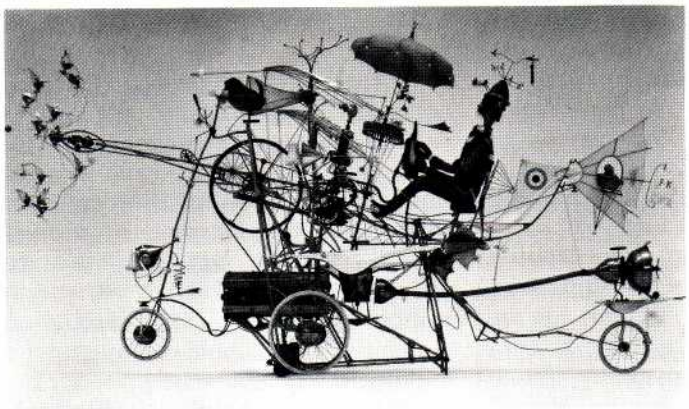


The Featherstone-Kite Openwork Basket-Weave Mark Two Gentleman's Flying Machine

Creation of Rowland Emett

"TECHNICAL DATA: The machine is constructed of cane windbreaks from little-known French vineyards and the wings are supported upon willowy saplings; all major control surfaces are covered with wild silk, suitably tamed. Power is provided by a Wandering Hot-Air Brazier and a swarm of underslung silver butterflies provide a trivial lift to the nose section. There is a full-time Auto-Pilot F.R.E.D. (Freehand Remembering Empirical Doodling system) and the co-pilot Rover in a combined pet-pod and windsock. The rudder provides a First Class dickey-seat for Cirro Cumulus II, the pilot's personal pleasure cat. Main wheels retract into semi-buoyant shrimp-like nacelles and 'Eiffle' Altimeter gives those three heights every well-found pilot should know—Canal level, Our Chimney, and Milky Way."



From as far as 70 miles, people come to Cleveland's Randall Park Mall to see and chuckle over Rowland Emett's "Featherstone-Kite," on view till August. Emett has been called the British Rube Goldberg, but his talents are in fact far more whimsical and satiric. He creates both drawn cartoons and their sculptural counterparts that whir, clink, puff, whistle and make a mockery of all that is sacred in the Victorian past and the card-punching future. Fantasticator Emett calls his antic works simply "Things," though turning that wit into machinery can be the work of as many as 15 craftsmen who weld, forge and glue his pieces of social commentary out of such antique components as doorknobs, bathtubs, lamp shades, Victrola horns, soup strainers, wicker and wiring. Among his spooferies are the incredible whatchamacallits of the 1968 movie "Chitty Chitty Bang Bang," and the Forget-Me-Not computor, now at the Ontario Science Center, Toronto, which does everything except compute, and contains an eeny-meeny-miney-mo system with woodpeckers as keypunchers. During a recent visit to Cleveland, Emett invited to lunch a boy and girl he found laughing together, watching the moving mockeries. The two are now engaged, and as a memento of their meeting, the boy gave the girl a print of Emett's sketch (reproduced here courtesy of Rowland Emett, through Lillian Daniels of Joseph Horne Co.). We who love kites can see that the relationship of the Featherstone-Kite fantasy to real kites is tenuous; but we can also see that the invention, as an expression of the feathery spirit that flutters at the heart of kiteflying, is genuine. Is there a true kiteflier among us without lunacy? ◇

story and phot

TAL ST

Heart-Stopping Kite

Watch the world's largest kite rise into the sky with the awesome grace of a giant ocean liner? See the traditionally quiet, reserved Japanese with their hair down? Enjoy the utter pandemonium of an ancient Japanese festival, religion, and sport all rolled into one? Learn the meaning of the phrase *tako kichi* and immediately turn into one yourself? The key to these riddles will be found on a visit to Japan in May and reveal a little known aspect of Japanese culture sure to fascinate new as well as experienced travelers to the Orient.

If you plan to be in Japan in April for the cherry blossoms, be sure to stay in May and June for the kite festivals. If you miss the cherry blossoms, by all means go especially for the kites.

HAMAMATSU

The Hamamatsu City (on the Pacific Ocean side of central Honshu just two hours south of Tokyo) kite festival on May 3rd, 4th, and 5th is beyond a doubt a kite enthusiast's ultimate fantasy come to life.

The visitor catches the excitement and festive spirit immediately as he steps off the *Shinkonzen* Bullet train at Hamamatsu Station. People milling around outside the station wear bright festival *happi* coats, a man with a tame monkey entertains the children, and people chatter together in anticipation, lining up for buses which will take them to the kiteflying arena.

Though not immediately visible, the kitefliers raise a cloud of dust and pandemonium which infects the whole city—no small feat considering Hamamatsu is a city of 500 thousand and the *tako kichi,* kite crazy visitors, swell the population to more than a million. They come from all over Japan, from all levels of society. The Japanese Imperial family has attended past festivals as have royalty from abroad. Businessmen, clerks, millionaires, noodle-makers, Europeans and Americans (though foreigners are only a handful in number) will have come from afar. All are drawn by what must seem to the uninitiated rather farfetched stories of unfettered behavior centered on (who would believe it?) toy kites. Transformation from noodle-maker or millionaire, however, is nearly certain, for those who arrive in Hamamatsu drawn only by curiosity are guaranteed to depart the city as full-fledged kite fanatics.

For the festival activities, the city is divided into 49 districts, each district sponsoring kites and a flying team of 50 men. Team members range from eight-year-olds just learning the trumpet signals (necessary to be heard over the arena din) to the district's strongest young men who race violently forward, pumping up and down on the long kite line, bodily running their kites up into the sky where the winds are strongest, to the older team members, men in their sixties who supervise the large, complicated reels on wheeled carts which let out and take in as needed the thousands of feet of kite flying line. Each team will have as many as 75 kites paid for by subscriptions and contributions from families of first sons born in the preceding year.

Two hundred and fifty years ago the Hamamatsu kites were flown as congatulatory symbols given by Shinto priests and friends to families blessed with firstborn sons. The kite's flight was noted then as a kind of divination or prophesy of the tiny baby's future. At some point in time now lost in the city's history, the young men who flew the kites in congratulatory displays took to fighting their neighbor's kites. This kite fighting, today highly formalized and held in a natural amphitheater, Nakatajima, right on the Pacific Ocean, is what we have come to watch.

To describe Hamamatsu kiteflying accurately would require some kind of excited babble-like overlapping of words for it is hard indeed and perhaps misleading to sort out the confusion that greets the Hamamatsu festival visitor's eyes and ears. The kites are all of identical size and construction, bamboo and paper, square with rounded corners, a bamboo pole running up the middle, which one man grasps preparatory to flight holding the kite high

tographs by

REETER

e Festivals of Japan

over his head. Only the kite's brilliantly colored dye decorations identify each district's kite. The kites range in size from three to 14 feet square (the smaller ones are flown on windy days and the larger ones on calmer days). Team members wear short *happi* coats decorated with the distinctive district design and colors to be found on their kite. All 49 teams are packed together in the flying arena (about the size of a football field) at one time. Adding to the confusion on the flying field are swarms of photographers, district friends and families and *tako kichis*, the latter, in a virtually hypnotic trance-like state of pleasure, drawn from the surrounding arena bleachers right into the heart of the festival kiteflying like bugs trying to get inside the glass of a bright light bulb.

The staccato commands of trumpets pierce the din and shouts of encouragement echo through the dust and turmoil. *Tabi*-socked feet pound the ground churning up a low-hanging cloud of dust out of which a tangle of flying lines emerge, their kites suddenly darting, climbing upward. Team members are evenly spaced out along the flying line holding it with a determination that squeezes the color out of their tightly clenched fists. Once in the air, kites are maneuvered into position to try to cut each other's string (tugging back and forth on the main flying line overlapping an opponent's lighter bridle at the kite's face will break it and set the kite free) or escape to a less threatened position more favorable to turning the tables on an aggressive attacker. On the ground, team line-men suddenly tumble backward in a jumble as their attacked kite is cut free of its flying line and flutters languidly downward, no longer engaged in battle and now nearly lifeless, floating to and fro like an autumn leaf falling from a giant tree. The loser's free line is swiftly rewound onto the reel as the kite team rushes off to replace its lost kite with a new one. Each team will fly 50 to 75 kites depending on their skill and luck during the three days of the Hamamatsu festival.

SHIRONE

Another kite festival battle takes place on the Northern side of Honshu directly opposite Tokyo on the Japan Sea in the rural town of Shirone (population 33,000). Two styles of kites are flown and fought here; one is large and one, by comparison, is small. The larger kite is known in Japan as *o-dako*, the giant kite.

The giant kites of Shirone are flown in a festival beginning on June 6th and lasting six days through June 11th. Three hundred of these giant 22-ft. high x 16½ ft. wide rectangular kites, joined by another thousand smaller, eight-foot-high hexagonally shaped kites duel in Shirone's clear summer air during the six days of the festival.

The kites are lofted from either side of a wide man-made canal by opposing teams who pluck each other's kites right out of the sky, their rope lines wrapped around each other in a battle which leaves the downed kites helplessly entangled straddling the canal waters—into which they finally fall completing their brief lives. The final victor in this unforgettable battle begun far overhead in the sky is determined by a noisy, exuberant tug of war on the ground. The kite teams (11 altogether) are joined by the festival audience stumbling over each other to grab the kite rope, pulling for all they are worth. Finally one poor broken kite—sometimes which one is difficult to determine—decides enough is enough. Bamboo ribs cracking sharply, it separates from the main flying line and is yanked across the canal waters toward the shouts and cries of the contest's victors.

Interestingly enough, neither Shirone nor Hamamatsu keep official records of these kite victories and defeats. They long ago found that feelings were too easily bruised when reputations were on public record and today there is more happily some latitude for heated discussions as to whose team is the best.

In Shirone the kite action is dispersed, taking place on either side of the Naka-

nokuchi Canal between two bridges a little more than a mile apart. As contrasted to Hamamatsu kiteflying which has been rigorously regimented with elaborate and precise equipment and separation of flying responsibilities into distinct components, Shirone kiteflying is relatively simple and informal. Fliers will hand their flying line to a bystander, allowing him to enjoy the feel of the wind – the kite far overhead never stops communicating to the hand at the other end. Kiteflying in Hamamatsu is a kind of exclusively male sport while at Shirone a young girl may be seen in the midst of the 8 to 12 member flying team running off at full tilt down the canal path, pulling their kite behind them, all dropping in exhaustion at the far bridge.

The giant kite feels like a heavy anchor one is trying to force bodily to fly up into the sky. The legs cry out in pain as if they are running in slow motion sinking deep into wet sand, the heart is deafening in its pounding. The flying giant, however, is rewarding beyond belief; a huge object slowly, majestically rising into the sky, large enough to block out the sun, beautiful enough to evoke a collective sigh from the Shirone audience which may be heard for miles around. The kitefliers knew the giant kite would fly again as it had every year but even they are unprepared for that moment of flight, the reality of their magnificent *o-dako* floating above them in the sky.

HOSHUBANA

There is yet one more kite experience a traveler to Japan's central island might seek out in the spring and early summer. In this festival only four kites are flown and although they were once fighting kites, they now no longer duel in the sky. All of the four kites are *o-dako*, giant kites. The two largest are the largest kites in the world and they have flown above the tiny village of Hoshubana every year for almost a century.

An hour north of Tokyo on a trip through lovely rural countryside scenery you may join the crowd of visitors – 100,000 and not too large by Japanese standards – flowing into the tiny, normally sleepy, time-worn farm village of Hoshubana, coming to gape at the awesome sight of the flight of the world's largest kite. Hoshubana's enormous bamboo and paper kite is 48 ft. high by 36 ft. wide. Including its bridle and flying line it weighs nearly 2,000 pounds and requires the carefully coordinated team work of 50 men to successfully launch it. The sight is not a bit less impressive, and is certainly more exciting than the launching of a great ocean liner. Amazingly, given the fact that not even the great Japanese kitemen can command the winds, the Hoshubana *o-dako* has flown on either May 3rd or 5th, the two days of the festival, every year without interruption for nearly a century.

Preparations for the festival will have involved at least one member of each of Hoshubana's households (its population is a little over 2,000) from as early as January. Bamboo "parent" bones, the strongest bones of the kite, are saved from year to year, but require periodic replacement. Smaller bones are freshly cut and integrated into the main structure, lashed together as a kind of huge *shoji* paper screen framework. Fifteen hundred sheets of specially handmade paper are then carefully pasted together at their edges to form the one single sheet of paper – larger than most billboards – which forms the kite's surface. All the more unusual and a testimonial to the strength of Japanese handmade paper, the kite paper's thickness is roughly the equivalent of a bond typing paper. An elderly and slightly built calligraphy master wields a huge brush almost as big as himself, dipping its bristles bigger than a horse's tail into tubs of ink, swirling the brush with bravado to form the vigorous calligraphic characters over 20 feet high which decorate the kite's surface. Two giant kites are flown together to spell out a complete message, "Year of the Rat" or similar legend decided upon by the official *o-dako* association.

Next the paper is attached to its bamboo frame and two hundred separate bridles are positioned across the face of the giant kite, tied at regular intervals through the paper at the junction points of parent bones. The whole kite is then lifted vertically onto a supporting structure, a scafford especially designed to provide the kite makers with a platform for making delicate adjustments to the complicated bridles with the kite in an upright flying position. If the bridles are not exactly symmetrically aligned from side to side the kite will never fly up (a principle which applies to normal-sized kites as well).

Now the kite is ready to fly. As I imagine it must each year, a hush comes over the noisy crowd of celebrants. Breaths are sucked in and mouths drop open in wonder as the 50-man flying team runs with the kite line diagonally down the slight slope of a dry riverbed embankment. The giant kite moves pondorously, slowly upward, finally to hover in complete disregard of the laws of gravity and not too far above so that its size as viewed from the ground is still awesome. If there are truly things one must see to believe, the Hoshubana *o-dako* must surely be one of them.

The Japanese welcome visitors (and visitors to Japan are always treated like special guests) to their kite festivals. For the incurably romantic kite fancier, a visit will begin pleasurably when the plane touches down at Tokyo International Airport, *Haneda*, "winged rice paddy," and quickly soar up into the sky again on the back of a proud, gaily colored Japanese kite. While in Japan, the sky still begins at the feet and reaches out into space, a Japanese kite singing with excitement to the earth-bound of the sky, ancient times, and eternity. ♢

THE STREETER-FAMILY has traveled throughout Southeast Asia and lived in both Japan and Korea. Tal went to Japan expressly to study traditional Japanese kite-making and while there made and exhibited large kites in Tokyo's most prestigious art gallery, the Minami Gallery. His book The Art of the Japanese Kite *is a classic in its field and is now being translated into Japanese.*

Hamamatsu: How to get there

Dave Checkley of Seattle is organizing his fourth group tour to the Hamamatsu Kite Festival for 1977, probably leaving the West Coast (Seattle, San Francisco or Los Angeles) by Pan Am Airlines on April 30 and returning on May 14. The group will fly to Tokyo via Honolulu, stay there overnight, and proceed directly to Hamamatsu (midway between Tokyo and Osaka) for the three-day event on May 3, 4 and 5. Sixty neighborhood teams of 50 to 150 men each fight with huge kites, up to 150 square feet.

The last day of the festival always falls on Boy's Day, May 5, which is one of the most colorful holidays in Japan, as all of the houses are decorated with *coi*, or carp, to celebrate the boys in the family. It is also an ideal time to visit Japan, as the weather is usually best before the summer rainy season, and before the hot weather sets in.

Following the Hamamatsu Kite Festival the group will travel to other cities and villages in Japan to visit local kitemakers and have a firsthand look at regional kite designs. They will also attend a kitefly as guests of the Japan Kitefliers Association. Last year JKA staged a big event at Tamamagawa, near Tokyo, with over 2,000 kitefliers from all over Japan demonstrating many different types of traditional Japanese kites as well as a number of new designs.

Details of the tour are not complete at press time, but the price will probably be less than $1,000 for the two weeks, including air fare from the West Coast and return (discount on connecting fares from other U.S. and Canadian locations), hotels, and transportation in Japan. So as not to impose on the Japanese hosts, the group will be limited to 30 persons. If you are interested in joining the tour, block out the first two weeks of May on your calendar and write for more information to Dave Checkley, The Kite Factory, Box 9081, Seattle, WA, 98109.

Dave Checkley

MORE READING ON HAMAMATSU

National Geographic Magazine has scheduled a 12-page picture story on the Hamamatsu Kite Festival for the April 1977 issue (to be mailed in mid-March). The article was photographed by David Harvey of Richmond (also a kite enthusiast), who spent three weeks in Hamamatsu last April and May with Dave Checkley researching the background material and taking pictures of the kitemaking and kiteflying. The Hamamatsu Kite Festival is probably the largest and oldest event in kiting, having a 400-year history and attracting one-and-one-half to two million visitors annually. D.C.

KITES ELSEWHERE IN THE PRESS

Spring regularly brings editors out looking for kite news. For 1977, the western edition of *Better Homes and Gardens* for April will carry a story on kite activities in the west. *American Home* in its March issue will publish an article on kiteflying. These are known to *Kite Lines* at press time; others may develop.

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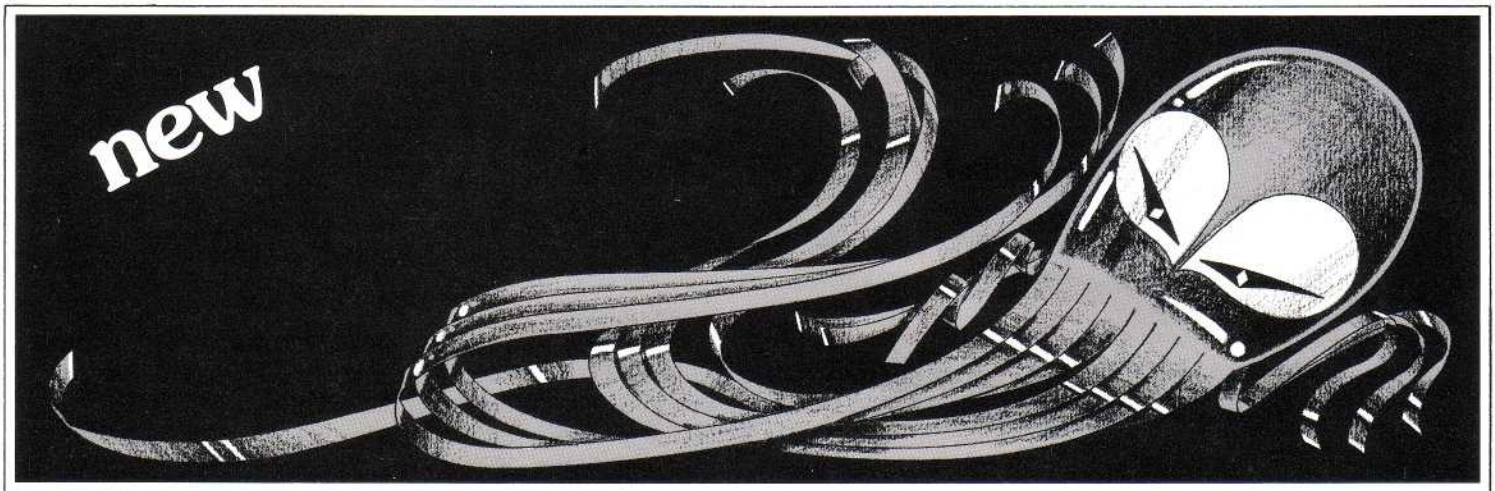

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What's New:
Kites, Books, Sundries

Kites

By Mel Govig
This issue's assistants:
Pete Ianuzzi and Rick Kinnaird

TWO OCTOPUS KITES

We had the pleasure to test two flying denizens of the deep blue skies made of modern materials: the black-and-white Tyvek® Octopus from the San Francisco Kite Factory ($9 to $11 retail) and the Mylar® Octopus from Mylar Star ($3 to $5 retail. A similar product is made by Quicksilver Kites, but it was not flown.)

Both models are shortened, slit-tailed versions of the familiar Mylar dragons, and fly with the same characteristic "activity," perhaps a degree more active because of the shorter tail and the loss of lift you get in the first 30% or so of the tail. The heads and bridles are exactly the same in construction as the dragons; both models tested have two-point bridles on a framework of a single head-circling bow and upright center stick. The Tyvek model had an extra cross-piece in the head, probably due to its larger size, and the "sticks" were vinyl tubes.

Of the two kites we sampled, the Mylar was the better performer; lighter and narrower relative to its tails, it flew on very light winds and got much more flutter in the air from the tails. Both kites launched easily, from the hand in a five mile-per-hour breeze; or in lighter winds with the help of a friend or by laying the kite face down on the ground and tugging it up. The Mylar octopus flew steadily in a three mile-per-hour breeze. The Tyvek octopus barely held its head up in a four mile-per-hour breeze and probably requires five miles per hour or more to fly well. The Tyvek model we tested was not very well balanced and went into a sharp left spin when the line was pulled in or the wind gusted over ten miles per hour.

"What's New" is the consumer department of Kite Lines. Comments are the personal reactions of the reviewers and are not to be construed as official ratings by the American Kitefliers Association.

Both kites have a music of their own, with the rustle of eight tails crackling in the breezes. I believe a youngster will find these exciting and easy fliers. Both come assembled, ready to fly, in an attractive, handy carrying bag. Instructions were limited but so was the need for them.

THE CORNER KITE

Carol Rogallo's new "Corner Kite" (about $30 retail) was a pleasant surprise. Designed by her dad, Francis Rogallo, this kite looks like a cross between a TV antenna and a marker buoy, and that's appropriate. Originally designed to be a radar corner reflector, it was developed as a distress signal for the Navy under Rogallo patents. Rather than design a kite that would lift a corner reflector, Rogallo devised a radar reflector that flew as a kite.

This non-metallic, nylon rip-stop version shows its ancestry. Here is a five-foot box kite that flies in a four or five mile-per-hour wind, folds up to about 2 ft. x 4 in., can be coaxed into the air when ground winds are only four or five-miles-per-hour if you let out a good long line and have a friend launch it by tossing it in the air. It is *not* an active kite. It flies in a straight line into the wind and drifts gently back down its own flight path. The Corner Kite is not a hard puller (has a one-point bridle) in moderate winds.

It is quite beautiful, horizontal in the air, and not at all like a TV antenna. There are good printed assembly instructions. Each kite is numbered serially in production (we flew number 18). This kite was built as a novelty, for aficionados, but in fact a novice could fly it.

SOME NEW FIGHTERS

Fighter kites are my special love, and I like to fly and compare them. The Kung Flew Kite (retail about $3 to $5, Ampac International, San Rafael, CA) was fun to fly. Come Fly a Kite and others have similar models under other trade names, so the type is available. Its distinction is its bamboo Indian fighter sticks (the old) combined with .5 mil Mylar cover (the new).

In flying fighter kites, the secret is to endure, and have your kite endure, long enough to learn how to fly it. The Mylar cover assures that. The printed instructions with this, and most fighter kites sold in the U.S., are very good and will reward the patient flier with a whole new world of kiteflying fun.

For those of you who have not flown the one-line maneuverables, the secret to their flight is that on a light line they fly like flat kites without tails: they spin. But a slight tug on the line and they sweep into a sharp dihedral (V) and dart off in whatever direction they are pointed, even straight down. To perform well, the kite should spin without losing altitude and move out fast when pulled (and stop quickly when slacked). Kung Flew did these things well in breezes from two to ten miles per hour.

The model I had to test had a poorly balanced spar, so it would usually spin only one direction. In comparison, the well-known Vic's Fighter Kites are more carefully made and will spin willingly in either direction. They are much more predictable and therefore easier to learn to fly, although they might not be quite so fast as the Kung Flew and other classic Indian fighters.

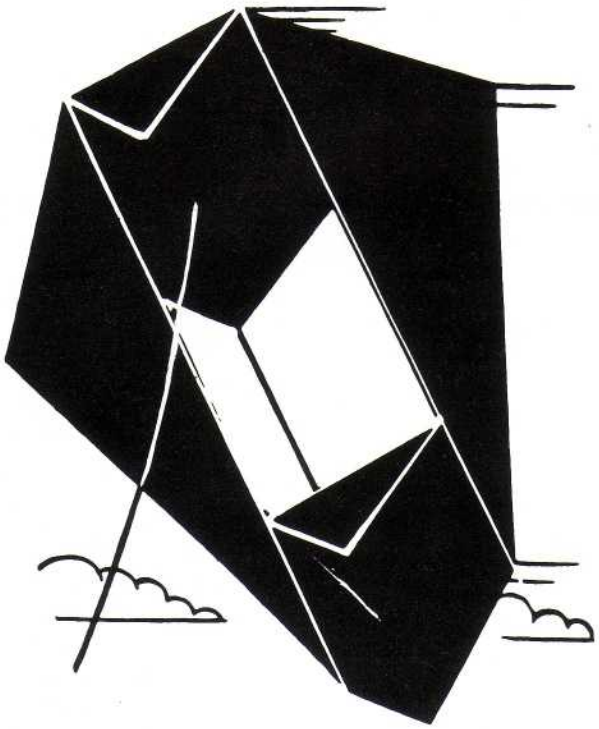
Another group of Mylar fighters (by several manufacturers) is plagued by a design problem that makes them slide off to one side and hit the ground under certain conditions. These are made with a fiberglass spar and rattan center stick without any bow in it.

Kung Flew and other fighters are not for little kids. But the Mylar covered fighters open this special sport to teenagers and older kids.

THE BETTER BUILTS

The popular Gunther keel kites from Germany have been copied for U.S. manufacture by Go Fly a Kite in New York City. The Better Built kites include an Eagle (retailing at about $5) and a Biplane (about $4 retail. There are also two other models at about $3 and $4 retail, which we did not test.)

These kites have the same high quality of workmanship and materials as their German parents. Plastic connectors and pre-cut sticks make assembly quick and easy (although the little sticks in the tail can be lost easily unless you secure them with a rubber



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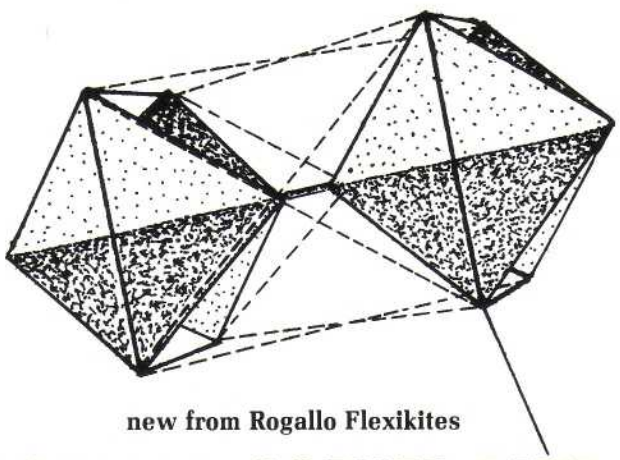

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band when not assembled). Keel-guided, they are very easy to launch and fly, although the two flew very differently.

The Biplane has the same general shape as the Schmetterling kite, and flies very easily and stably. Unlike many deltas made of vinyl, it seems to have very little trouble at ground level.

The Eagle was a little more ticklish to get up, probably due to its high aspect ratio. It tended to take great pendular sweeps before it rose high enough to settle down and took an occasional spiral loop when it reached flying altitude. The Biplane has a very steady backward glide on a slack line and can be "pumped" up to flying wind level so long as there is enough wind (two miles per hour) to keep the kite downwind.

The printed designs are bright and colorful and only slightly less realistic than the Gunthers on the ground, but very bird-like and plane-like in the air. There are assembly instructions but no flying instructions, though for the Biplane instructions are probably not needed. For the "Buy America" movement, Better Builts look like a welcome addition.

THE WRIGHT FLYER KITE KIT
By William R. Bigge

The market for kits *seems to be quite distinct from that for* kites. *There seem to be plenty of people out there who like them and support the kit industry as it continually produces new items.*

Stratton Air Engineering is almost alone in manufacture of kite *kits. Their kites are generally of good quality and not expensive, considering their "ingredients," though builders must willingly contribute time also.*

The appeal of kits may be that they combine the pleasure of personal handcraft with a sure result. Depending on the kit, the crafter may be called upon for considerable innovation and expertise. The common standard is that the more the kit guarantees a result, however complicated or time-consuming, the better it is.

It's something of an achievement to build a Stratton kite. Enough so, in fact, that most kite contest judges look twice at a Stratton before dismissing it as a mere kit kite; usually the maker has invested a lot of sweat and gray-matter equity in it.

No spurner of these kits is Bill Bigge, who has made and flown Strattons before, though his original airplane kites are his specialty. For this report he spent about 20 hours making the new Wright Flyer kite, plus about one hour flying it in the arctic conditions of mid-winter Washington, DC. This kit retails for about $11.50 in most kite and hobby shops.

General Comments

Stratton Air Engineering kits are for true airplane kites and are of some interest on that basis. This kit is not as difficult to make as the most challenging model airplane kits, but it is a lot harder than usual for a kite. I would recommend it for adults or precocious youngsters only.

The picture on the kit box shows a kite with many differences in detail and is less helpful than one would expect.

The large number of plastic connectors is impressive but confusing. The fact that the first drawing for the bottom wing center shows the wrong connectors does not help confidence. I think double-checking of all openings of all connectors in a given subassembly should precede any gluing. A drawing of the plastic "tree" with all items identified as to final location would have been helpful.

Even though all the wood is supplied, it is still worthwhile to select the flawless lengths for the outer wing panel spars, the only use that seemed at all critical.

Paper gussets are probably adequate with lap joints as used here. The folded paper pilot adds to the appearance. It is explicitly stated on the plan that the covering must remain porous for best flight stability. Such frankness is commendable. The greatest objection with Silkspan® use relates to sensitivity to weather. A number of otherwise flyable days are wet enough that a paper kite should not be flown.

Assembly

The wing centers are shown being assembled right side up. This is less confusing but actual assembly is more convenient upside down.

Pre-cutting the paper for the outer wing panels worked quite well, although I would somewhat prefer to trim the paper after covering either the inner rib or outer rib.

When cutting the paper for the elevator I think it is worthwhile to leave enough margin that the paper can be attached to the vertical edge of the outline, so it does not have to be pulled down between the ribs.

During construction of the center section, it can be tipped onto its front, the spars and struts made perpendicular and the assembly left to dry.

For the elevator control threads, it is much easier and seems more satisfactory in several ways to tie an adjustable loop around the assembly for each pair of threads. Adjust for a slight tension and for parallelism, then glue. Later, remove top and bottom of loop if desired.

I made a few errors. For one, I got glue into the rudder post supports. This probably reduced the friction somewhat when the post was made to fit. To keep the rudder aligned against flight loads and moderate landing shocks I added a line tied around the bottom of each rear interplane strut and running around the bottom of the rudder. It is tight enough to keep the rudder from turning when it shouldn't but allows adjustment. It can also be slipped off the rudder to avoid fatigue between flights.

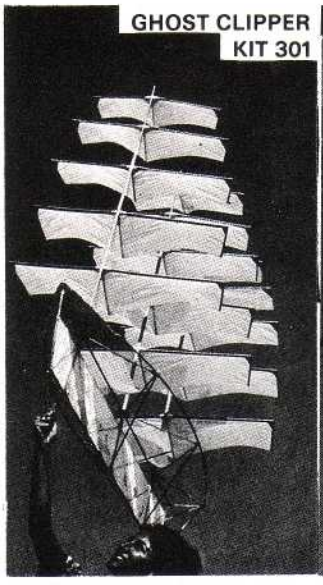
For the hinge pin, which is not actually shown on the plan, I used an 1/8-in. dowel, sanded to snap through the elevator control arm and cut to about 1/16-in. thickness to be bound and glued to the elevator control stick.

The friction ring provides too little friction for my taste. The friction is

DATA CHART

	Size	Material	P	Assembly time	ED	EWS (min.-max. mph)	AF	SL
Tyvek Octopus	18x75"	Tyvek®	G	Assembled	E	5-10	40°	E
Mylar Octopus	13x54"	.5 mil Mylar®	G	Assembled	VG	3-10	30-35°	N
Corner Kite	30x66"	nylon rip-stop	E	1.5 min.	E	4-25	40-50°	N
Kung Flew	22x18"	.5 mil Mylar	G	Assembled	G	2-8	0-90°	S
Better Built Eagle	52x27"	vinyl	E	2 minutes	G	3-15	30-55°	E
Better Built Biplane	34x30"	vinyl	E	2 minutes	G	2-15	30-85°	N
Wright Flyer (kit)	4' span	Silkspan®, spruce	G	0-2 min. on field	G	4-18	40-60°	E

Code: P=Portability; ED=Estimated Durability; EWS=Estimated Wind Speed; AF=Angle of Flight; SL=Skill Level, N=Novice, E=Experienced, S=Skilled
Ratings: P=Poor, F=Fair, G=Good, VG=Very Good, E=Excellent



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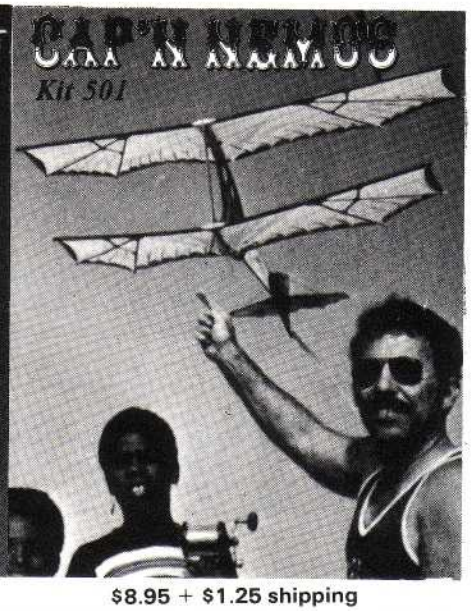

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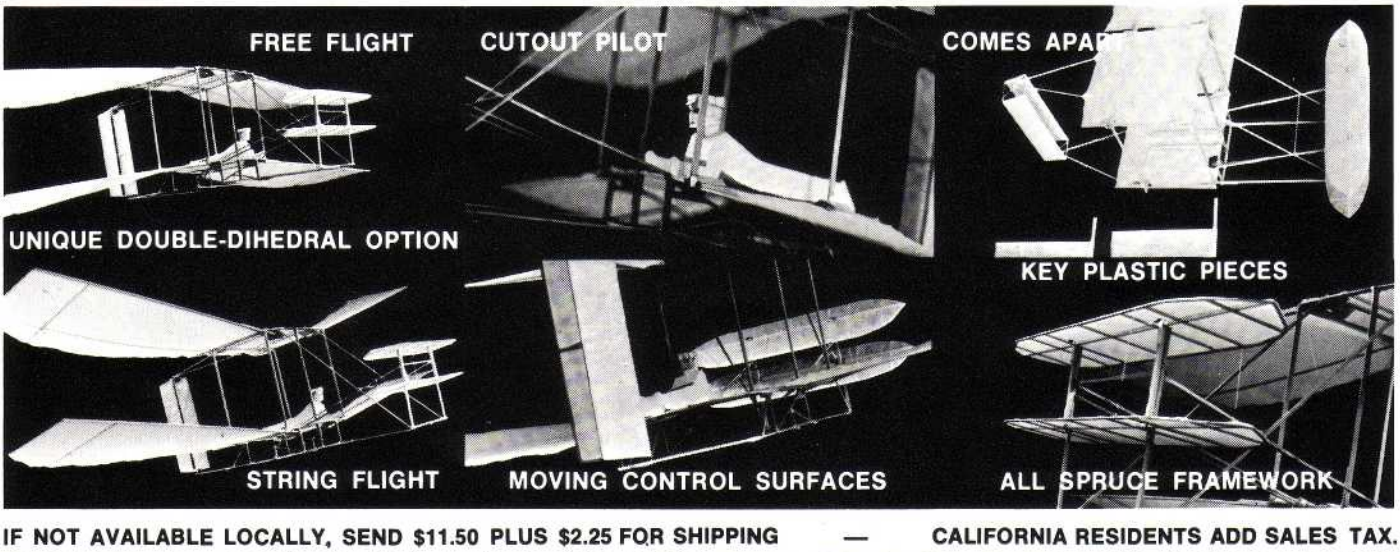

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What's New
(Continued)

readily increased by inserting a stick—possibly tapered—opposite the elevator control stick, thus deforming the ring.

In order that the wings can be readily attached and removed and also set either with or without dihedral, it is necessary to do some filing of the 12 fittings. This should be done with enough care that the two wings on each side are interchangeable.

Flying It

The Wright Flyer may be more critical than some of the Stratton Squadron line because of a lack of sweepback. It is rugged, though, and as somewhat of a scale model, its free-flight gliding ability may be highly valued by some.

The center of gravity seems a bit far back for a stable glide. This may make it more manageable as a kite, especially with the elevator adjustment provided.

I flew the kite easily with a single forward tether instead of the three-leg bridle specified. Two-, three-, four- or (with elastic leg) five-leg bridles could be rigged to give a variety of flight characteristics. The single forward tether naturally gives a low maximum line angle but it is in some ways the least critical. If you like elastic bridles this kite should benefit from one in terms of high maximum line angle and low tension variation.

At a scale of 0.12 a full-scale speed of 35 miles per hour translates to a 4.2 mile per hour "visual" scale speed or a dynamic scale speed of 12.12 miles per hour. The reference to "very scale performance" could be misleading but most builders probably do not care or perhaps even know about dynamic similarity. It is just as well that the three-dimensional wing loading is much lower on the kite; I would not like to have to be a pilot 2.9 times as quick as one of the Wrights.

Giving slack when it rolls as much as 30° or so seems to make the kite fly reasonably safely. It tends to turn away from the operator when it is banked and the line is slacked.

The Wright Flyer has a very interesting appearance. More than once during my flying it was identified by a spectator as a Wright design. Though somewhat more work to make and fly than other Squadron kites (the builder is well advised to make another Stratton kite first), the Wright Flyer is a spectacular kite. I referred several inquiries to the local kite shop. These kits must be popular, too, at the Smithsonian National Air and Space Museum gift shop, near the original Wright Brothers Kitty Hawk craft.

Books

By Valerie Govig

TEACHING KITES

Blown Sky-High, by Margaret Greger, illustrated by Joan Slattery Newcomb (Richland, WA, 1977), 88 pages, $3.50.

For seven years Margaret Greger has been "committing kites in the classroom," and she knows there is no substitute for real hands-on experience. Her book is not intended to be all things to all people, but rather to zero in on the problem of achievable, succesful kitemaking in group settings (of which the school is the prime, but not the only example). Thus the kite designs she offers are deliberately selected and modified to be as simple as possible without sacrifice of sureness. The only deviation from this standard that I could find was her sled, which could have been simpler.

Kite Lines was privileged to see this book in manuscript. There are 14 kites included, a good variety, some of them new to me—the Vietnamese kite, the Stapled Sled, the Dutch kite. Fabric kites are a strong point, and the instructions for these are standardized and simplified.

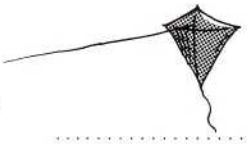
Suggestions also are included for relating kites to the curriculum in math, science and art. Despite this seriousness, the fun of the flying comes through. The author's cheer and sense of humor sneak in throughout the book.

The illustrations (by an expert kitemaker) are nicely done, and the diagrams are clear and accurate (no small nor common achievement).

Teachers and other adults who attempt the daunting task of working with children and kites simultaneously will find this book The Answer. But they may not find this book. It is self-published and will not be on your neighborhood bookstore shelf. However, it is timed to be out before the March crush. May it find its special audience. *(See* Kite Lines *Classifieds)*

This issue's test models were supplied by The Kite Site in Georgetown, DC, for the Octopi and Corner Kite, and Go Fly a Kite, New York City, for the Better Builts.

MOVING?
Send us a line!



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News From Here & There

ARIZONA

The Rev. Kenneth Edward Seim, valued member of the American Kitefliers Association for the past several years, died suddenly on Nov. 6, 1976, at his home in Sun City, AZ, at the age of 67.

A Doctor of Theology and founder of the Colonial Church of Edina, MN, he held many important positions in religious organizations. After retiring to Sun City in 1972, Dr. Seim became well-known in the community as a kiteflier. He built many kites and distributed them generously to those who expressed an interest. A photo showing him flying a huge delta kite with his daughter, appeared in one issue of *Kite Tales.*

Dr. Seim was an early member of AKA and wrote frequent letters with helpful information.

Survivors are his wife, Joyce Tenney Seim; two daughters, Sybil Ann Rombauer and Sarabess Mercer; mother, Mrs. Emma Linder; a sister, Aileen Benthin; and five grandchildren.

At the request of Mrs. Mercer, we are including a short poem written by a colleague of Dr. Seim's:

Beginning new life
In eternal time
The Lord gives His greeting
To Kenneth Seim.
"Here you can fly with all My might
For I am the sky, you are the kite."

CALIFORNIA

Louis Denov reports from San Diego about his experiences:

My 3-ft. Eddy wouldn't fly straight, so I thought I would experiment with weights. I added a ball of putty, about ½-in. diam., to the end of the horizontal stick that needed pulling down. It didn't seem to do very much.

Picturing a kite as somewhat similar to a sailboat, I put the putty on the bottom of the vertical stick (adding weight to the keel). Unbelievably, this made the kite very unstable. It wouldn't fly upright and wanted to dive to either side. Since by now all logic was destroyed, I next put the putty on top. You guessed it, it became extremely stable and well-behaved.

Next, with Vic Heredia, we tried weights on one of his small, well-balanced fighters. You would think that a ball of putty about ⅜-in. diam. on the end of the horizontal member would cripple such a kite's flying ability. It flew only about 15° off to one side. Vic said that certainly destroys the theory of mending kites; that a patch put on one side of a kite should be balanced with an equal amount of material attached to the other side.

Next we put the putty on top of the spine. The kite became so stable it would hardly fight—that is, it almost refused to turn from the upright position when the line was slacked off. And when the putty was put on the bottom, and the line was slacked off, the kite spun like a top.

How can these results be explained? Why does a kite fly up? If a kite were not aware of gravity it would fly in any direction. Yet when you add weight to the "keel" it becomes less stable. These experiments suggest that any kite tail should have wind resistance but should be as light as possible.

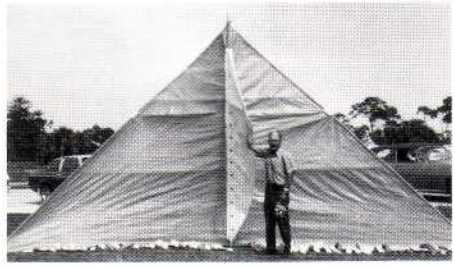
In further experiments, to what limit could I keep adding weight to the top? Would the kite finally get overbalanced? Or would it get steadier and steadier until the weight was too much for the kite to lift?

The Long Beach chapter of AKA is busy preparing for its 51st Annual Kite Festival, still the oldest in the U.S. A group of kitefliers from Japan is expected, and new plans made for the weekend of April 22, 23 and 24, 1977. Saturday is the main day, and will include competitions somewhat expanded from those in previous years. Booths will be set up for a display of manufacturers' and retailers' kites ("the largest and only display of its kind"). On Sunday there will be kite fighting between teams from northern and southern California.

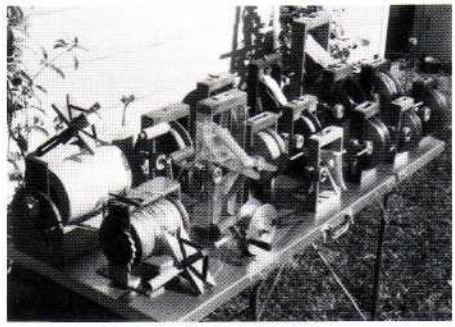
FLORIDA

Ray Fahrenbruck, 77, is a long-time AKA member of Madeira Beach, FL, who shuns the rocking chair. He plays tennis several times a week, practices archery—and (you guessed it) makes and flies kites.

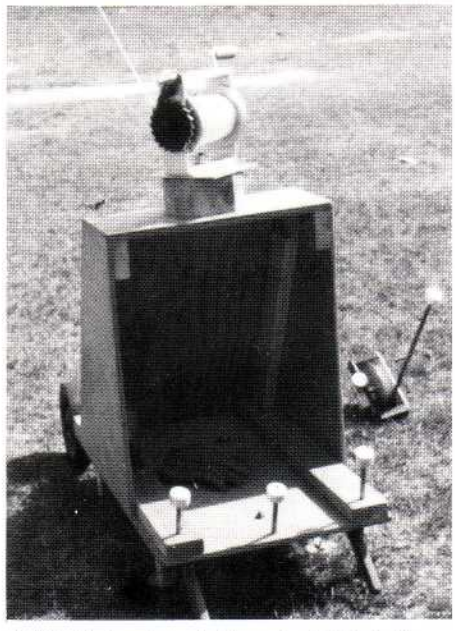
A retired machinist, he has designed and crafted many fine reels and gradually built up a collection that ought to take a prize for "largest kite reel collection in America." He selects his ratcheted steel winch to hold the line on "Big Blue," his crowd-drawing 12 x 24 ft. delta. The spars of this kite



Ray Fahrenbruck dwarfed by "Big Blue"



The Fahrenbruck kite reel collection



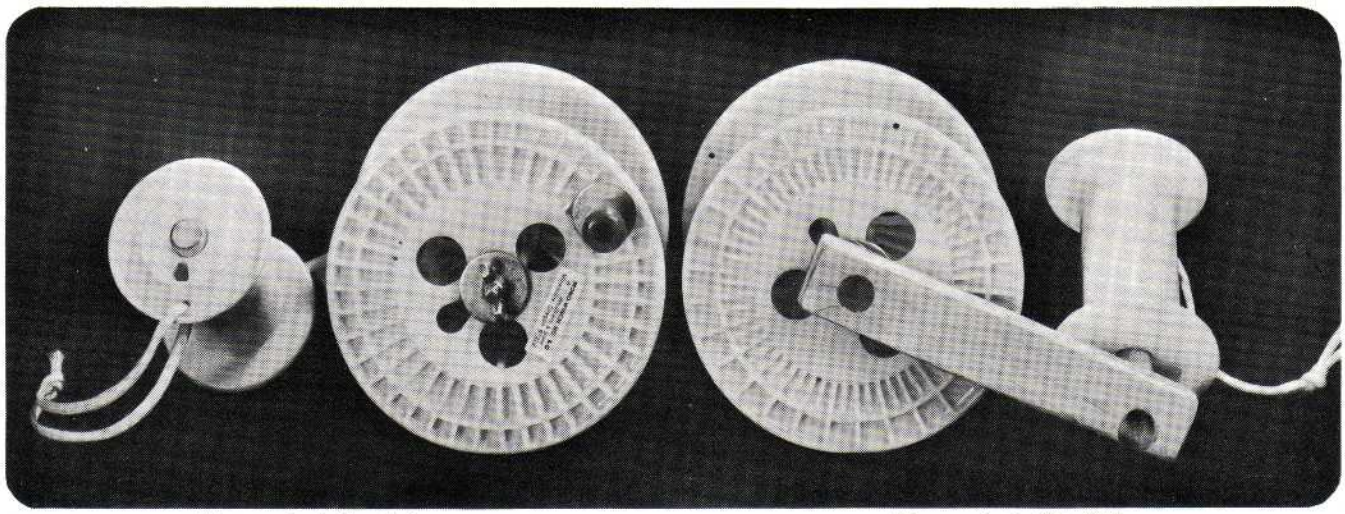
"If I had wheels on both ends of this dolly I believe I could ride on it on a smooth surface. However, I could go only in the direction the wind was blowing."

(Continued)

SOME REEL ALTERNATIVES

Make a list of the features an ideal kite reel should have. Check your list against the descriptions of the W. O. Weathers & Sons reels given below. You will discover that our Mono-winch* reels have more of the features on your list than any other reel; regardless of price.

Note our low prices. We can offer these prices because we use recycled (top-quality) spools.



Mono-winch No. 6D

No-strain-no-pain grip permits you to hold a hard pulling kite comfortably (see above). A first in kite reels.

Large capacity spool winds in a foot or more of line per turn.

Fly-from-the-belt capability.

Hardwood side beam permits easy attachment of your pet idea (line guide, pullup rod, etc.).

Drag brake that can be held for a light drag or set for full lock. A first in kite reels. **$13.50**

Model No.	Re-wind Speed (MPH)	Mono-Filament Line Capacity (in Miles) 10 lb	15 lb	25 lb	30 lb	Price
5	1.5-3	2	1	X	X	$4.50
6	2-4	3	1.5	X	X	$6.00
6M	2-4	3	1.5	1	X	$9.50
6D	2-4	3	1.5	1	3/4	$13.50

Line not supplied

THE TWINGLE (Not shown)

This is a twin spool reel (two Sidewinder No. 5 spools pinned on the ends of a 22" axle, with a movable handgrip/bearing between the spools). Great for two-line kites.

$10.50

Mono-winch No. 6M

Similar to No. 6D, but without a drag brake and with a slightly lighter spool weight (see above). Quick spool change feature permits spools to be changed in seconds without tools. Ideal for Kitefishermen. **$9.50**

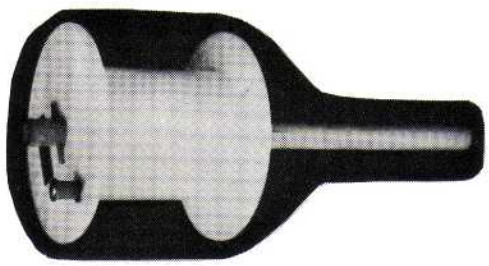
Extra spools for No. 6M

Standard spool, order 6MS **$3.95.**

Spool for light line, order 6ML **$2.95.**

Sidewinder No. 6

Conventional spindle-type reel. Same spool size and weight as Mono-winch No. 6M. For fighting kites, light kites, and general line swapping. **$6.00**



Sidewinder No. 5

Slightly smaller version of Sidewinder No. 6. **$4.50**

Note: Mono-winch handgrips are 3.5" between flanges. Extra large hands won't fit unless inner grip flange is cut off.

All shipments postpaid in the U. S.; Money orders bring faster service. No COD's

Address all orders and correspondence to: W. O. Weathers & Sons
17707 S. E. Howard St.
Milwaukie, OR. 97222

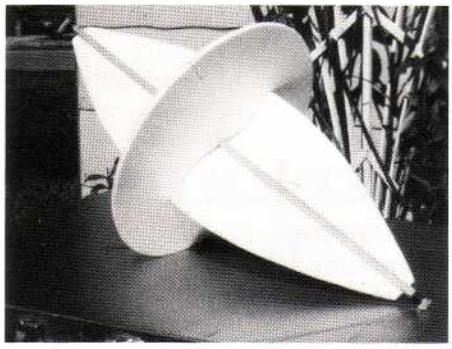
*Trade Mark of W. O. Weathers & Sons

(Continued)

are Calcutta bamboo and the cover is reinforced plastic. He flies it on 650 ft. of 420-lb. test braided nylon line.

The latest Fahrenbruck kite is a plastic foam rotary, which Ray flies well in light breezes.

Archery combines well with kite-flying. Uppity bystanders or low-down kites offer convenient targets. When you're 77 you should be able to do anything you want.



Ray Fahrenbruck's precision – made rotary

Fahrenbruck kite collection

"An overgrown tetrahedron I made a couple of years ago. It flies well but requires a 15-to 18-knot breeze to sustain it and is a headache to transport to the flying field."

MAINE

Kitty Corti of Maine is doing something a bit unusual – selling kites from a van. It is not the first traveling shop we've heard of ("It's Time to Fly a Kite" operated this way in Beverly Hills), but Kitty is having problems unique to her Maine locality. As reported in the *Maine Sunday Telegram*, she can only work when the weather is nice, the wind is good and she can get a town permit.

Because she sells from a van, she is legally an itinerant peddler, and Maine towns, she's learned, have old ordinances against peddlers. As delightful as the services are that she provides, the towns have been incredibly stuffy. As the story says: "The Selectmen of Wiscasset refused her a license; Scarboro said 'no,' and Northeast Harbor, Kennebunkport, Old Orchard Beach, Boothbay Harbor, Camden, Bar Harbor and others either refused to answer her applications or denied her permits."

The towns are missing not only kites but Kitty's van, a transformed old post office route truck with driver's seat on the right, decorated brilliantly to her design (Kitty's an art teacher, too). There's a desk built in, carpet underfoot and of course kites from floor to ceiling. Her license plates, the finishing touch, read KITES. She has traveled about to Maine's fall foliage festivals in hopes that the exposure will gradually create acceptance from the town fathers. Everyone else gathers around and smiles over Kitty's van.

Ed Anderson

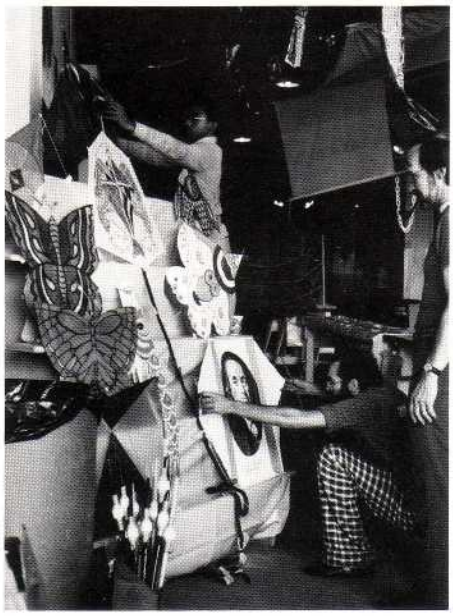
Kitty Corti and her vantasy kites

MARYLAND

The Baltimore City Fair is the big annual urban event in its area. Last fall it saw kites for the first time when the Maryland Kite Society was invited to handle a booth. This they did for three full days, a manpower challenge but a great opportunity for kites to gain friends; visitors to the Fair regularly number over a million.

The Society's space was decorated with a large collection of kites, including Curt Marshall's 24-ft. delta-Conyne hovering above. Photos and

Bill Kocher



A large kite display draws attention for the Maryland Kite Society at the Baltimore City Fair last fall.

slide showings were included, and several craftsmen made kites through the weekend.

The Society was encouraged to sell kites, though they usually avoid commercialism, so they stocked up quickly, then "stocked down" afterwards. The over-stocking resulted in meager profits, but at least it gave people a good time.

Joining the kiters were children of the William S. Baer school for handicapped children, who made sleds, decorated them with the wheelchair symbol of access for the handicapped, and sold them to pay off their new special bus – the very bus that brought them to the fair. That *was* a profitable venture, and added to the good feelings.

Busiest of all were Rick Kinnaird and Mel Govig; one of the two was on hand at all times. Their hardest task was keeping kites safely up in an area with so many people strolling about. It was done without incident but will

be one of the aspects to improve when the Society takes part in future fairs.

In mid-October the Society had an enjoyable fall fly and meeting in Burtonsville, MD, with slide showing and a buffet at the home of the gracious Robert S. Prices.

The Windsor Hills Neighbors Fall Fly was held at Baltimore's Leakin Park after a week's postponement due to rain. Turnout was smaller than usual, but the day was much enlivened by a surprise visit from Dale Fleener, who came all the way from Massachusetts to be there. In fact, he had come the week before, was rained out, and returned again the next week. Dale pulled out a great assortment of colorful kites and staked them to the ground for flying—putting on a veritable one-man show. After a good day's flying the Society bunch gathered at the Govigs' for dinner and talk.

Plans are now underway for the 11th Annual Maryland Kite Festival, to be held April 30 on the now-complete field in Baltimore's Inner Harbor. The site is adjacent to the Maryland Science Center, with which the Society is working on pre-Festival programs. Once again, there will be large cash prizes, Maryland medallion awards ("gold," "silver" and "bronze") and the option for distant competitors to ship kites to the Society for proxy flying. Write for details to Rick Kinnaird, 3206 Greenmead Road, Baltimore, MD 21207.

OHIO

Charlie Sotich of Chicago reports the acceptance of a kite in a model aviation meet—a big event at that. He and William Bigge participated, and both are double-disciples of model aviation and kiting, as well as long-time AKA members. Says Charlie:

The National Model Airplane Championships were taking place in August, 1976, at Springfield, OH. The contest director asked Bill to find out about the wind drift several hundred feet up. There was no obvious drift near the surface.

Bill's Janus [kite] flies both forward and backward. When the line is wound in it tows the kite up. If tension is reduced on the line, the kite glides away and can pull out more line. Over a mile of line was measured out and the kite was out of sight in the morning haze for much of the flight.

Bill Bigge, his reel and Janus

The kite reel has a 3-ft. circumference and a revolution counter on it so the length of line out is always known. This unique kite is really an outstanding flier.

(Plans for the Janus will appear in a future issue of Kite Lines.)

WASHINGTON

Jack Van Gilder reports for the Washington Kitefliers Association in Seattle:

We had a successful meeting of the W.K.A. at the Pacific Science Center in mid-October. We reviewed a summer's worth of slides and made plans to contribute some expensive books to the Seattle Public Library in memory of deceased member Tony Toledo. We are still exploring possibilities for a kite movie.

The annual W.K.A. New Year's Day fly-in was held at Golden Gardens Park, and weekly Sunday afternoon fly-ins are still attended, though sparsely. Seattle weather has been very unusual this year; fog and calm.

Lately John Dusenberry and I have been flight testing our two different versions of kite trains. Dusenberry is doing his with open-keel deltas, small 24-in. tissue paper models. He's using a snap swivel attachment between each kite and light, twisted nylon line with the keel reinforced by a line glued right into the kite, the line running straight from the apex of the keel to a point directly below the crossing of the spreader bar with the spine. A loop of line includes the spreader bar so that the next succeeding kite line is directly atop it.

I'm using a "Bill Lee Special" tissue paper delta. This kite uses exactly one 20 x 30-in. sheet of tissue paper, three pieces of matchstick bamboo (from curtain shade) and an 1/8-in. dowel for spreader bar, 44-in. wing spread.

My bridling system didn't work too well with twisted nylon line, so I switched to braided to take twist out. There is a slot in the kite cover next to the spine and under the spreader bar, reinforced with tape, through which the main line continues from kite to kite. I'm using a 12-in. 12-lb. braided nylon line bridle from the main line to each kite, each bridle having a 1-in. bamboo stick at the end which is slipped through a hole punched in the keel of each kite, like a button and buttonhole. Each succeeding length of main line is joined to the one above with a tillerhitch. Realizing that each knot is like a link in a chain (the weakest link controls the strength of the chain), I am resorting to the Brute Strength method: 100-lb. line.

Jack Van Gilder in mid-train at the W.K.A. New Year's Day fly.

I have a triangular cardboard box out of which my kites spew. The box is needed for ease in transportation (it has a suitcase handle) and for protection from the wind while I let out and retrieve the kites. So far, with 30 kites, it has been easy to handle. I'm aiming for 100 by spring.

In March we're going to be plenty busy. The 12th and 13th will be our annual exhibition at the Pacific Science Center. We exhibit about 150 kites and demonstrate kite-making for crafting your own, on the spot. Then on March 19th is the annual Seattle Center Kite Contest.

Near Seattle, in Bellevue, WA, a kite show will be on view in March at the Panaca Art Gallery. It will include sky paintings by Pat Friddell and kites by Joan Slattery Newcomb (illustrator of Margaret Greger's new book, reviewed this issue on page 45). Most kites will be fabric, but some will be intensely decorated paper. *(Continued)*

BLUE YONDER KITE WORKS

454 Pennsylvania Avenue San Francisco, California 94107 (415) 282-2747

Dear Kite Dealer,

First I'd like to thank you for making our entry into the world of kite crafting so much fun. Getting to know you wonderful people has been terrific. Second I'd like to thank our 30 foot Super Custom Dragon, which also has made it a lot easier. We think it's the best flying Dragon on the market today and we're selling it at the lowest price we've seen for a kite of this quality. We handcraft the Dragon in our own 'Works' which is a funky old San Francisco Victorian in a neighborhood that has seen better days but is on the rise again.

Super Dragon takes off in the lightest breeze and climbs high enough to be seen for miles. The head is of F110 rip stop nylon on which is sewn a pair of flight oriented, handcut appliques. These 3 brilliant colors are then joined with at least 6 others in the spectacular 30 foot tail. When not in the air most people use it as a wall hanging but it looks a lot happier when flying.

Please help us find more good homes for our dragons. All they need is an introduction. Drop us a line for color photos, samples, etc.

Don't get lost in the clouds,

Tom Watson
Blue Yonder Kite Works

News From Here & There
(Continued)

JOHN H. RAY

WISCONSIN

The death of John H. Ray at the age of 72 was reported in Kite Tales, *Vol. 10, No. 3. Some further information about him has been penned by Bob Ingraham:*

Along with the glamour and satisfaction that my efforts have produced in organizing the devotees of kiting over a large share of the world, have come great sadnesses, and the passing of John Ray is one.

I first met John at the end of a kite string next door to Ed Grauel in Borrego Springs, CA. He showed me the prototype of a kite reel he had designed and asked me if I thought it would fill the need of the average kitefliер. I assured him so.

Marketing began after an intensive search for the finest materials available, an indication of the character of the maker who abhorred shoddiness and would affix his name to nothing short of perfection within his capability to provide it.

It is my privilege now to continue marketing of this reel which I trust will extend an appreciation of the fine product and good name of John Ray to many more kitefliers for a long time to come.

NATIONAL KITE DAY: MAY 8

Ready with your Yeas and Boos?

Several things are good and several things are not-so about this date.

- *Not-so:* The date is Mother's Day, and even if we privately do want Mother to go fly a kite it's a doubtful choice for public promotion. It can be said that any date is arbitrary—but some are more arbitrary than others.
- *Not so:* It was planned by Kiteworld, the kite distributing company in San Francisco, and lacks wide adoption; it's essentially the San Francisco National Kite Day.
- *Not-so:* It came about in a hurry and suffers from the limitations that even the best efforts do when rushed.
- *Good:* Early May weather is usually suitable in most places.
- *Good:* The plans have a good start in California, where the National Park Service and U.S. Coastal Commission have made arrangements to host kitefliers on their lands. Also retailers doing business with Kiteworld have been encouraged to plan for the day.
- *Good:* It is definitely a good *idea.* The least we can do as individuals that day is get out and fly our best kites.

JAPAN: LATEST WORLD RECORD

AKA received a press release from Tokyo that 1,585 kites were flown from one line by seven Japanese, breaking the world record by 150 kites. We wrote to Larry Hoffman, AKA member in Japan, for details, and here is his report:

Tsuyoshi Odawara, 40, Yjoshitomo Yoshimura, 40, Shinosuke Toba, 41 Yoshio Harada, 51, Katsuhiko Kitano, 43, and Morihiro Okada, 34, made up the team that constructed the train kite and flew it with the help of Takeshi Nishibayashi, 61. All these chaps are from the Tokyo area. They had about 300 more kites to run up but due to wind conditions decided not to. It took 2½ hours to put out the 1,585 kites and an additional 2 hours to retrieve *them all!* Bamboo sticks, 1 x 1 mm, were used in a diamond design. The vertical stick of each kite measured 30 cm and the horizontal 25 cm. Spacing was one meter between each kite. Covering was polyethylene and overall pull with 1,585 elements out was between 80 and 100 kgs. I don't have anything on the line used but for the most part the Japanese kiters use nylon. The date of the event was 19 November 1976. ◇

Talking Tails

in which crepe paper squares off against tinsel, drag factors meet lift, and coffee cans beat out

In July of 1974 in Nags Head, NC, a group of Maryland Kite Society friends gathered to talk after the local kite contest. A tape recorder was set out to catch the discussion. On hand were:

Stephen John Bernstein **Valerie Govig**
Sylvia Bernstein **A. Pete Ianuzzi**
Lt. Col. Bevan Brown **Arthur Kurle**

Though the subject of kite tails was explored, it was by no means exhausted. We print the exchange here to stimulate further thinking.

VG: Do you agree with Will Yolen [noted kite-flier and author] in his contention that any kite is improved with a tail sometimes? That's what he told me once.
BB: *Is this t-a-l-e or t-a-i-l?*
VG: *T-a-i-l.*
PI: Well, you can face the fact that almost any kite will fly steadier with a tail on it.
SJB: I think it'll look prettier, too, with a tail wiggling around.
PI: A tail on a kite will not necessarily make it fly better, but it'll sometimes make it fly when it won't fly without it.
VG: You would kind of agree, then. Well, some people are very dogmatic about some kinds of kites not being appropriate with tails, like Eddy kites.
AK: Well, I've got a kite that I can adjust the string angle just by adding a tail, but it doesn't make it fly better. Doesn't add any stability at all.
BB: I think if you're going to be a purist and insist that it isn't an Eddy kite unless it'll fly without a tail, you're essentially trying to prove whether or not you *built* the kite properly. I think whether or not you put a tail on it, or what kind of a tail you put on it, is a function of a number of things. One is: making it fly the way you want it to fly. And another is: making it look the way you want it to look. I think it's part of the *character* of the kite . . . When I make a kite, I'm trying to *do* something. I can see what I want, and if I want it to be there, it's there for a reason.
PI: Also, any kite *can* fly without a tail and therefore it's a challenge to skill, ingenuity and ability to make it fly without a tail. By putting a tail on a kite that *can* be made to fly without one, you are getting the job done using a crutch. Now there's nothing wrong with that, but it's a challenge to your skill to make it fly without it.
SJB: The question was, will any kite fly better with a tail?
SB: I don't think that's a true statement.
PI: You can even put a tail on a sled kite when wind conditions are bad and the sled is tending to spin and dive and . . . with a tail on it, it'll steady down and fly.
VG: Well, extreme wind always puts you to a test. It probably isn't suitable for the kite, but you might make it sort of marginally satisfactory a little while longer – with a tail.
BB: A tail is sometimes kind of a brute force solution to something that you might be able to do by some other way – by finesse – which might include – making another kite!
AK: I think you could sum up this whole thing by saying that: some kites have to have tails; some kites are sensitive to tails (and are improved by the right type and weight and drag of a tail); and others – don't care!
SJB: On those that don't care – how can you really tell? Suppose you built an Eddy kite that flies perfectly without a tail and you put a tail on it. Now who here can say that it doesn't fly better with a tail?
BB: If you can't tell the difference – If . . . like Paul Garber says, that's part of me up there in the sky, then what's up there is what I want it to be.
SJB: Yolen may be a little teasing.
BB: Oh, he is. And he's trying to provoke a discussion . . .
AK: I could, in effect, smooth out ground turbulence by using a long tail. It essentially puts the kite up higher where the kite's smoothing out the bumps.
PI: If it flies well without a tail and you add a tail to it, it probably is not going to fly as *well* because it's going to drag more. The angle is going to decrease, it's going to take more wind . . .
BB: See, that's something we haven't talked about, the performance characteristics . . . If you talk about the flat kite . . . it's going to be somebody's estimate, what kind of tail it takes for that size of kite . . .
SB: The experience we've had on the flat kite, the one we flew today, the dragon kite [a centipede] – that tail is almost the answer to how that kite flies. And it's amazing how many times it's been lengthened and shortened and –
BB: The conditions –
SB: Exactly –
BB: And it's very sensitive to whether it needs drag, or whether it needs weight, or a combination thereof.
AK: Particularly your flat kites can be very sensitive to tails.
SB: And a small kite is apt to take an extremely long tail.
SJB: Wind velocity versus length of tails –
BB: It's hard to standardize on something other than steady wind.
VG: What is the purpose of a tail?
SB: Drag, lift.
BB: Appearance – to achieve a specific flight characteristic.
AK: Air anchor.
VG: On this question of drag versus weight, are there different kinds of drag? Do you sometimes want just weight? . . .
AK: Damping. Damping is right, and drag is right, but the weight is detrimental always, I think.
PI: Well, the box kite we saw flying today, the barrage type, the fellow [Rick McClanahan] had a little lead weight at the back end of it, not on a string but just mounted right on the back. He changes the size of that depending on the weather conditions.
BB: That changes the center of gravity relative to center of lift and that's another matter.
AK: Does this change the angle of the dangle on the tail, or what?
BB: Changes the angle of attack on the kite itself.
AK: What's that got to do with the tail?
PI: Well, I'm just saying that it's weight.
VG: Bob Price [expert box-kite maker] seems to think that the rear cell of a box kite is comparable to a tail.
AK: Sure. Sure it is.
BB: Relative to the front.
SJB: No, that's not a tail, that's part of the kite.
BB: I think we ought to define a tail as being something that's attached to the basic form, and extends out behind, and is normally flexible . . . The kites that don't need a tail have something that gives them inherent stability, lateral stability and directional stability. Now, lateral you can get with dihedral; directional you get by a keel effect or some sort of rudder or drag-type effect. You can get that alternatively with a tail, with the damping effect.
VG: How do you know when you need a tail, or when you have enough? Do you have any rules for how long a tail should be?
SB: The type of kite that you're making determines the length of the tail. And then when you get the kite up, you sometimes have made a horrible mistake and you have to bring it down and either lengthen the tail –
BB: But how do you tell when it's too long or too short?
SB: By the way it'll spiral and come right down into the ground!
BB: Instability means you need more.
SB: Exactly.
BB: What I do, if I'm in doubt, is put on something that I think is too long, or maybe too heavy and then I start taking it off until it *just* begins to get a little bit lively.
SB: It is better to take off than to add.
SJB: Something empirical about it, right? . . .
PI: It's exactly cut and try, try and cut. And it's all subjective by what it is you want . . .
VG: Well, you don't have a rule though – some kind of ratio to the width of –?
PI: There's no such thing, practically . . . It depends entirely on the style of kite and the weather conditions.
BB: Right, and of course the type of tail you're using, because if you use crepe paper, which is very light, you need long or several; if you use Christmas streamer type, which tends to be maybe heavy, you don't need as much.
VG: What materials do you prefer for tails?
AK: Crepe paper is far and away the one single choice for kite tails, I think.
BB: I disagree. The day after Christmas, hit the department stores and buy all that good Christmas tinsel, the streamers. It comes in a variety of weights and sizes and it's very pretty . . . because we like to use tails for effect.
VG: Those plastic leis are great as kite tails . . . terrible as leis, but good as kite tails.
AK: If you need a lot of drag, you can get the party streamers, they're in bundles, fringed streamers, with a cord center that you hang for garlands.
BB: You say paper ones of these as opposed to some of the Christmas decorations.
AK: Oh, always paper. Christmas decorations in my judgment are way too heavy. Compared with what you can do with a corresponding paper tail, it's not worth it. Something I've dis-

covered that makes a good tail is foam package filler, the peanut-shaped pieces of plastic, that you can string together with needle and thread.

BB: Which gets back to the earlier point . . that you can get by with drag and not weight, and the lighter you can have it to get the drag . . . to get the desired effect, the more efficient your kite's going to be . . . it'll fly in a lighter breeze if you can do it with drag instead of weight, because the weight-carrying capacity of the kite becomes a limit.

AK: Your tail has appreciable weight. You introduce another factor that you don't necessarily want, which is changing the angle of the kite.

BB: You should be able to do that better with the bridle.

PI: One thing *not* to use as a tail for a kite — I've tried several times using Styrofoam® cups strung on a string. They're hard to string, they don't work quite right, they dance all over . . . so I've heard of people using them, but I don't recommend them.

BB: I have used them, but not totally satisfactorily.

SB: Another beautiful effect in kite tails is ribbons — packaged ribbons, colored ribbons. They twirl and they do beautifully in the wind . . .

SJB: The big disadvantage is they're expensive, very expensive.

SB: That's the only objection.

AK: We're talking about an entirely different effect there, decorative effect rather than . . .

BB: Aeordynamic effect.

SB: . . . We go to remnant centers and use cloth. On one of our kite tails we had beautiful scotch plaid taffeta. It's been one of our most effective ones, and it's colorful . . .

VG: Rag tail, do you think it's a good kind?

AK: If it can handle the weight, there's no problem, but if it can't handle the weight then a rag tail is bad.

SJB: That's one thing about rag tails, if they pick up moisture they are going to be really heavy, that's why polyester type material is, I think, preferable to anything like rag tail of cotton or something like that, and is much sturdier. If it falls on the ground where it gets wet you won't have any problem.

VG: It's an amazing thing that the Bermuda kite has extremely long — usually a pair of long ribbon rag tails. Actually, they're tied at intervals. Well, it's a longer tail for the kite . . .

AK: Yeah, but that's right. The Bermuda kite is a brute force kite, it has a lot of lift, which is balanced out by the stability of the long tail, and you don't care; you've got steady winds in Bermuda.

BB: Also, the design itself, the planform, is a little bit long on the front and actually goes contrary. If you're going to build a kite to try to fly without a tail you would make it, say, wider on the front, narrow in the back, so it has more lift in the front, which means it takes a lot of compensating to overcome that, because you're purposely making it fly what would be naturally upside down.

VG: A Bermuda is sort of a barn door upside down . . .

AK: Yes, this is a kite that absolutely has to have a tail, it will not fly any other way. That's why I call it a brute force kite.

VG: What about bow ties? Do you have any opinion on bow ties or bunches of paper at intervals along a string?

AK: Far inferior to a streamer type tail, I think. You get lots of drag but you don't get any stability. You don't get the same order of stability. The damping effect is nowhere near as good.

SJB: You don't think it's worth the effort.

AK: No . . . for visual effect, maybe, but streamer tails are better.

VG: I think the one thing about them that I find objectionable, very much so, is the miserable tangling you get afterwards.

BB: One way to get drag is to put something out at the end of a string or ribbon or streamer, that has drag, for instance a bow tie. But something that's uniform, say a streamer that's uniform all the way, would tend to be much better for damping. The bow tie would be like the Styrofoam cups, you don't get the damping effect when you've got groupings of drag in the plane . . . You've got the drag, but it doesn't help you because it doesn't produce the right side effects, and the main function of the drag is to provide damping, and that gives up the damping.

PI: Now there's one time when you do use the bow tie type of tail — when you don't have anything else. To make a bow tie, all you need is string and a few pieces of paper, and it will work — it will work.

BB: But I think you are definitely giving up one of the functions.

VG: Long strips of newspaper, that's kind of colorful, especially from comic pages, very cheap.

AK: Not very strong.

VG: But it's a quickie, if you want a quickie.

PI: And bow ties always end up acting like propellers and winding the string up to a farethee-well.

BB: Which brings us into talking about using a snap swivel.

VG: What about the general care and management of tails? Do you have a tail kit, or bag, or bank you draw upon?

AK: You can just wad the whole thing up into a fist and that's it. It doesn't hurt it to be crushed as long as you don't overdo it. The only thing that's difficult about it is getting it damp on dewy grass.

SB: They *will* fade and become dreary looking and detract.

AK: Oh yeah, in that situation they are disposable after a couple of minutes.

SB: Another thing about these tails, you can have a series and then have snap hooks on them so that if you want to unsnap a certain section to make it shorter it's very easily done.

AK: I do that quite frequently. I make maybe three different length tails out of crepe paper, with snap hooks, put each one in a separate envelope, just stuff it in, you know.

SB: We roll ours and then they unroll easily.

SJB: Crepe paper, we just tear it apart, but with the cloth tail, you do use the snap buttons, every six or eight feet.

SB: Well, when you've gone to the trouble of getting this beautiful scotch taffeta, you're going to keep the tails as long as possible, therefore the care you put into them is different.

SJB: Always use pinking shears, then they don't unravel at the edges.

BB: We usually have, say, gold or silver or green of the Christmas streamer type, and in different weights, and we just put the snap swivels on and we just pick one out of the bag, you know. And we have some others to make new ones when we need it to match the kite . . .

VG: Someone out on the field today went to the trouble of sewing hems on the sides of his tail strips. He was that fussy about the raveling that he said he'd encountered with previous tails he'd made.

AK: I found that storing fringed paper tails and also Christmas tree streamer type tails — you can do it very nicely in a coffee can with a replaceable plastic lid.

SJB: Cellophane bags have a bad habit of crunching everything.

AK: Yeah, you could put about 25 feet of tail in one coffee can, even if it's a really bulky one.

SJB: You're still talking about crepe paper tails.

AK: No . . . fringed paper garlands that they use for room decorations.

PI: One material that doesn't work too well for tails is ripstop nylon.

AK: Yeah, it's too slick. Another thing that doesn't work very well at all is just plain plastic strips, they're much too low on skin friction.

PI: Well, that depends. I've got a kite that was made in Germany which has a piece of very, very light red plastic about 30 feet long . . . works great.

AK: You could probably do as well with about 10 feet of crepe paper . . .

BB: With less weight.

PI: Well, the weight is very small; the tail becomes part of the kite.

AK: I've got some comparisons on crepe paper. It's always cheaper.

BB: Unless you count the gas to go buy some.

VG: This reminds me of a kind of philosophical question. Where do you draw the line between a kite's body and its tail, in the case of, for instance, cobra kites . . .

BB: If it has lift and supports itself I think you can consider it part of the kite. In a cobra kite, if it's held flat on, it essentially is part of the kite and that is actually a lifting surface as well.

AK: It stabilizes the kite so that the vital portion is actually flying and the tail is streaming and stabilizing the direction.

BB: It has drag, but it's not taking up the lifting part of the kite; I agree with that.

PI: I think you're trying to split peas and bananas and it doesn't really make any difference. The thing on the end of a cobra kite is a tail, but it happens to be part of the kite and that's all there is to it.

SB: The whole body is its shape and proportion that comes down to this long ending tail, and . . . I agree, it is not a tail, it is actually a part of the kite.

(Continued on page 58)

Flying with The Old Pro

By Bob Ingraham
Founder, American Kitefliers Association

For the benefit of new members of AKA, it might be well to retrace the history of the Association and publication in order to explain the change of management which, I hope, will vastly increase membership and circulation of the world's only existing magazine designed and now in publication solely for followers and devotees of the kiteflying sport.

AKA was organized on a limited basis, with only nine members, in October 1964.* The entire project then was a hobby interest with no growth rate of any proportion anticipated or any intention entertained toward making the overall operation a commercial project.

To make the embryo association cohesive and enable members to share ideas concerning the flying of kites, kite building and personal relationships, I suggested that a small quarterly mimeographed publication be prepared by the founder and mailed to each member. This was done. The charter members each contributed $2 for the first year to defray the cost, and thus began the first issue of *Kite Tales*, then known as the *National Kitefliers Quarterly Review*. The next and all subsequent issues became known as *Kite Tales*.

AKA and *Kite Tales* continued as a hobby endeavor for the next six years and grew with a rapidity that challenged the limited facilities of the headquarters in Silver City, NM. While yearly subscription rates and dues continued minimal until 1970, the overall costs of publication, correspondence and record-keeping far exceeded gross income and it became necessary then to continue the publication of *Kite Tales* by offset printing it and accepting advertising. The magnitude now established required more effort than the Silver City operation could summon, and future demands certain to be placed on just two people, both in the senior citizen category, made it mandatory that a change be made.

In choosing a successor to become the editor and publisher and to establish the American Kitefliers Association on a more formal basis, Valerie Govig has been uppermost in our minds. Publication of any magazine in specialized recreational pursuits requires an intense and knowledgeable interest in the subject matter. While AKA is replete with those highly knowledgeable concerning kites and kiteflying, few have the rather unusual and highly important requisites of editing and journalistic training which Valerie possesses in addition to a love for kiting and all that it entails. I would not go so far as to say that there are none in the Association with such capabilities and qualifications, but our experience has been that any who do have no desire to become involved with an operation that requires their entire time and energies.

The relinquishing of this cherished task, despite all its magnifying complications and seemingly insurmountable problems, is not without pain and a diminishing of our pride in accomplishment. For 12 years we have been in touch with practically the entire world. We have made literally hundreds of personal friendships and reached out from our remote headquarters into virtually all corners of the globe. The membership of AKA, despite the common concept of kiting as kid's stuff, is of the highest cultural and intellectual level. We have contributed in a small but relatively important way to the socio-economic factor of the world and take pride in the fact that our efforts have made a valued impact upon modern society.

To all those who have so loyally supported AKA and *Kite Tales* in the past, we urge that they continue to aid the new management equally so that it may continue the climb to the degree of success that we hoped for, but were unable to accomplish. The magazine will henceforth be published in a region that offers opportunities and services we required but never had. The consequence was a limitation placed on our ambitions which precluded further upgrading of the overall program. We are certain that the improvements forthcoming will be of benefit to the AKA membership and to commercial kiting activity.

No dictation is being made to the new management regarding editorial policy or mode of operation. The only contingencies are that all commitments be honored as they now exist and for whatever period of time. We are aiding in every way possible to expedite the transition and will continue to serve in every way possible to perpetuate and heighten the monument we erected to the cause of man's interest in flight as expressed with kites.

To begin with we ask that all matters of business pertaining to membership in AKA and the publication of *Kite Lines* be addressed to the new headquarters in Baltimore which is contained in this issue. Such communications as do continue to reach us in Silver City will be speedily relayed to the Baltimore office.

To what and where for me now? First of all I am going back to my original research in kites and kite building, something long neglected. And I'm going to complete a book on kiting, also way overdue. I hope I may get around a bit and fly kites with people I've known a long time and continue my interrupted ambassadorship in the interest of kiting and AKA. And we're going to do this until they pull the curtain across our stage and turn up the house lights. You see, there's one thing we are avoiding and that's being removed from the stage by the hook. And that was pending. We just didn't know when.

Robert and Hazel Ingraham

*For the record, the first members were: Benn Blinn; George M. Endicott; Robert M. Ingraham (Founder); F. C. Jewell, M.D.; Francis M. Rogallo; *Walter Scott; F. Rankin Weisgerber;* Will Yolen; and Anthony Zeigler (italics denote deceased).

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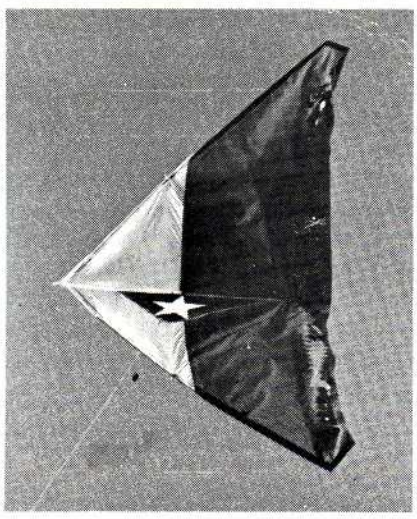

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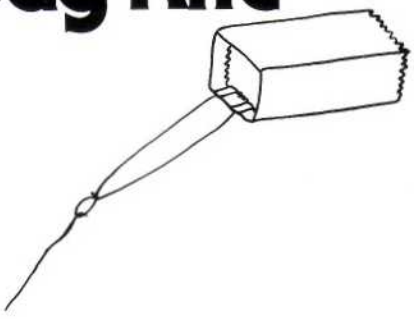
TALKING TAILS

(Continued from page 54)

BB: Well, I imagine it can be both.
SB: Well, technically it is.
BB: It's not impossible for it to be both.
SB: It's a split decision, really.
BB: I'm saying, in some cases the distinction between the kite and tail is not really relevant.
VG: Something that bothered me once was that a well-known kiteflier was out flying a great long Mylar® dragon. I prefer to call those things snake kites because it distinguishes them from the stack-of-plates dragon. Well, anyhow, he was claiming for all the press to hear, and it was spread throughout the land on AP that he had the largest kite in the world. Well, he had one of these dragons that went on forever and in that long dimension it was a very large kite, but it was not, in my opinion, either an area or actual kite body large enough to qualify, because it was really primarily tail. So I was kind of offended by that, but the press is always picking these things up . . .
SB: When you have a dragon kite that's 20 feet long with all its disks, but in addition to the end of that last disk you have a long tail . . . where do you distinguish somewhere along that dragon's body is the tail? We consider the part that we've *added* . . . to be the tail.
SJB: You bring up a point. Now if the dragon kite is properly designed, properly graded towards the end where the disks diminish in size, you don't need a tail. Theoretically . . .
BB: I don't think that's a necessity.
AK: You don't need a tail anyway.
SJB: Only to this thing: If you have same size disks going all the way back, the tendency might be that the end disks are going to lift on their own, which is the problem I'm having. If they diminish in lifting capability as they go, then . . .
AK: Have you ever seen a dragon kite flying in a really stable condition? They fly like this [holding up arm at sharp angle].
BB: Theoretically, they should fly up like that. It's seldom that you get one rigged well enough or a steady enough breeze, especially, to where it will all actually lift, an even lift.
AK: In a properly flying dragon kite, the tail streams at a considerable angle to the body of the kite and it's purely decoration, no stability at all.
VG: Well, one last question: Is the drogue a species of tail, or the tail a species of drogue?
BB: I'm not going to get into that one!
SB: Again, this . . . can be answered both ways.
BB: Like needles on the head of a pin . . . I don't think that you have to make that kind of distinction . . . A drogue has drag and a little bit of weight, but it does not have, maybe, the same kind of damping characteristics that you get with an even tail. It's a variety of a tail which has grouped drag at the end, like a bow tie, essentially . . .
PI: A drogue is really a very large Styrofoam cup, and you can use it to provide the forces you need to stabilize a kite, but there's lots better ways to do it. For instance, my parafoil has a drogue that comes with it, and there's much better ways to stabilize a parafoil than with that drogue. But nevertheless, I've got it and I use it occasionally.
BB: Part of the use of a drogue, for instance, on parafoils, is . . . not really because that's the best way to stablize it; it's consistent with materials and the design of the kite. The choice was not really made on the most efficient way to stabilize it. ◇

Kid's Corner

The Brown Bag Kite



Some of the best places for kite-flying won't always have kites for sale nearby.

If you are a real "pro" and are not particular about the way the kite looks as long as it flies—you could forage for a kite. It's like foraging for food in nature's wilds. There's adventure in seeing what you can do with common, everyday, not-special materials wherever you happen to find them. You do need string to start with.

Here's a kite that is probably the very simplest you'll ever make, the Brown Bag Box Kite. It's not pretty and it's not a specatcular flier, but it does work.

Find a brown bag—the square, stiff type, like a lunch sack or grocery bag. That's all you need. Tear off the closed end, and fold a neat, even hem on that end. Straighten out creases and wrinkles as best you can.

Cut a piece of line about twice the length of the bag. Attach each end of your string (with tape if you have it, or if not punch holes and tie through) at each corner of one of the wide sides (see drawing.) At the exact middle of the line, tie a loop, then tie your flying line into the loop.

Test fly your kite. If it seems to need a tail, or if you just like tails, you can add one to the back on the same side the string is attached to. Tail could be foraged paper napkin strips or a short piece of paper taped or tied on.

Fly away! V.G. ◇

Bill Kocher

Kids, we hope you will come to this Corner every issue. Send your questions and ideas to us! Have you ever made a foraged kite yourself? Like at the beach out of reeds and scrap plastic? Or out of wrappings and straws from a fast-food place? Show and tell! Write to Kid's Corner, Kite Lines, *American Kitefliers Association, 7106 Campfield Road, Baltimore, MD 21207.*

Classifieds

Services and products are listed as a service and listing does not imply endorsement by the American Kitefliers Association. Publisher reserves the right to reject any ad not in keeping with publication's standards, and to abbreviate to save space. *Rates:* 20¢ per word, $2 minimum. Post office box numbers and telephone numbers count as two words, abbreviations and zip codes as one word. Check or money order, made payable to American Kitefliers Association, must accompany copy and be received prior to *closing date* (Summer issue closes April 1). Send to: *Kite Lines* Classifieds, 7106 Campfield Road, Baltimore, MD 21207.

WANTED

BACK ISSUE *Kite Tales* Vol. 9, #3, unwanted or extra? I'll pay $2.50 + postage. Write first: Ao Loo, 7 Sundel Ave., #2, Toronto, Ontario, Canada, M6M 3K2.

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NEW BOOK: *Blown Sky-High* by Margaret Greger, ill. by Joan Slattery Newcomb. Based on author's extensive experience with classes and groups of all ages. Simple kites, designed for success. How to go about committing kites in the classroom. The basics of fabric kite construction. For children, adults, and adults working with children. Illustrated procedures. 14 kites – deltas, sleds, Orientals, and others too exotic to classify, constructed of paper, plastic, and fabric. Saddle-stitched paperback. $3.50 + 50¢ ship. *Blown Sky-High,* Dept. KL, 1425 Marshall, Richland, WA 99352.

LIMITED NUMBER of kite books: *World on a String,* Jane Yolen, $5.95; *Kite Craft,* J. & L. Newman, $4.95; *Complete Book of Kites and Kiteflying,* Will Yolen, $9.95. Prices include mailing at book rate. Send check or money order to: Bob Ingraham, P. O. Box 1511, Silver City, NM 88061.

BACK ISSUES of *Kite Tales* magazine beginning with Vol. 8, #4 and extending through Vol. 10, #3 only. $2 ea. including mailing. Order from: Robert M. Ingraham, P. O. Box 1511, Silver City, NM 88061.

KITE PLANS, $2 or $7.50 for complete kite, ready to fly. Standard delta design with 2 improvements that make the kite fly higher when the wind gets stronger. Has all the good qualities of conventional deltas and none of the bad qualities. Easily made from plastic garbage bags or plastic drop cloths, wood dowel sticks, and adhesive tape (cellophane and cloth). See U.S. Patent No. 3963200 for description. Plans include 2 brackets which make one kite. Extra brackets are 30¢ per pair + 20¢ postage per order. The $7.50 kite is handmade in Los Angeles by a native American, using 3-mil. thick polyethylene, wingspan 68", length 34". Rolls up and fits in a 2" tube, 48" long. Unrolls to fly with no loose parts and no dangerous sharp metal hooks. Repair service: free advice or $2.50 for replacement. Orange polyethylene sheet is available separately, 36" wide, 3-mil. thick, for 45¢ per yard or $1 for 7', + the following postage: $1 shipped folded flat, or $2 shipped rolled up in a tube. 4' can make one kite; 7' can make 2 kites. Bennett Arnstein, 3049 W. 8th St., Los Angeles, CA 90005. Call (213) 388-3517 (eves. and weekends).

Super Kites, book by Neil Thorburn, $2.50, 4738 Elmhurst Dr., San Jose, CA 95129.

KITES, KITE KITS, fighter kites, Scoots, flying lines, reels, building materials, cloth and books. For product and price information write Kite Kraft, 8131 Croydon Ave., Los Angeles, CA 90045.

RETAILERS LISTING

Above & Beyond, 1510-G Walnut Square, Berkeley, CA 94709.

The Ben Franklin Kite Shoppe, 423 Whalley Ave., New Haven, CT 06511, and Factory Square, Mystic, CT 06355.

Cape Cod Kite Company, Shopper's Market Mini-Mall, High School Rd. Ext., Hyannis, MA 02601.

Heavenly Body Kites, Harbor House, 423 Front St., Key West, FL 33040.

High as a Kite, 201-131 Water St., Vancouver, B.C., Canada V6B 4M3.

Higher than a Kite, 209 Osborne, Winnipeg, Manitoba, Canada R3L 1Z4.

The Kaleidoscope, 3295 Rochester Rd., Troy, MI 48084

The Kite Farm, 728 University, Madison, WI 53715, (608) 255-1018.

The Kite Kompany, Inc., 33 W. Orange, Chagrin Falls, OH 44022, (216) 247-4223.

The Kite Shop, Jackson Square, 542 St. Peter St., New Orleans, LA 70116.

The Kite Shop, B St., Hampton Beach, NH 03842.

The Kite Shop, Carol Hamilton, 973 Grand Ave., Pacific Beach, CA 92109.

The Kite Site, 1075 Wisconsin Ave., N.W., Georgetown, DC 20007, (202) 965-4230.

The Kite Store, 848-A Yonge St., Toronto, Ontario, Canada M4W 2H1.

The Kite Store, Eric Gibson, 69 Neal St., London W.C. 2, England.

Kiteworks, Beach Road, Box 2010, Vineyard Haven, MA 02568.

ANNOUNCING: Go Fly a Kite of NY and Hani Dzubas of Kiteworks, Vineyard Haven, MA, are opening a new store on Newberry St., Boston, MA. See us there! Kiteworks will be a division of Go Fly a Kite in Vineyard Haven, Martha's Vineyard, MA, open May 15-Sept. 15, (617) 693-1453.

Let's Fly a Kite, 13763 Fiji Way, Fisherman's Village, Marina del Rey, CA 90291, (213) 822-2561.

Riverwind Kite Works, 612 N. 2nd St., Lacledes Landing, St. Louis, MO 63102, (314) 421-0299.

Vancouver Crafts & Kites, 2936 W. 4th Ave., Vancouver, B.C., Canada V6K 1R2, (605) 731-7822.

Windy City Kiteworks, Ltd., 2828 N. Clark St., Chicago, IL 60657, (312) 348-1630.

WHOLESALERS, MANUFACTURERS AND MAIL ORDER BUSINESSES

Airplane Kite Co., 1702 W. 3rd St., Roswell, NM 88201.

Delta Wing, 1011 Chester, S.E., Grand Rapids, MI 48011, (313) 645-0362 or 356-1427.

Explorers, 21 W. Micheltorena St., Santa Barbara, CA 93101, imported kites, reels; wholesale only.

High Roller Kite Spool, P. O. Box 73, Sausalito, CA 94965, (415) 332-2150.

Keoki's Kites, 897 Main St., S. Glastonbury, CT 06073.

The Kite Ranch, Sky Puppets, Rt. 1, Box 890, Franktown, CO 80116.

Kite Specialties, RR 1, Box 157, Bloomington, WI 53804, (608) 723-7112.

Kites International, 1000 E. Northwest Hwy., Mt. Prospect, IL 60056, (312) 394-0900.

Kites Kites Kites, P. O. Box 828, Silver Spring, MD 20901.

M. W. Management, Ltd., Import-Export-Wsle., P. O. Box 86670, N. Vancouver, B.C., Canada V7L.

Sky High, Inc., 160 N. Northwest Hwy., Palatine, IL 60067, (312) 359-7993.

Ultra-Kite, 904 Century Bldg., Pittsburgh, PA 15222.

Whimsicalli Kites, 4113 Padre Blvd., P. O. Drawer 488, Pt. Isabel, TX 78878.

March

1

Domina C. Jalbert files patent for first parafoil kite, 1967.

3

Alexander Graham Bell born, 1847

5

29th Annual Mission Bay Kite Contest and Parade, Ocean Beach Park, San Diego, CA. Sponsors: San Diego Park and Recreation Dept., Ocean Beach Recreation Council and Kiwanis Club. Contact: Don Hodo, 4726 Santa Monica Ave., San Diego, CA 92107, tel: (714) 488-9525.

6

8th Annual Kite Carnival, non-competitive flying on two successive Sunday afternoons in March, Royal Park South, Parkville, Melbourne, Australia. Contact: Paton Forster, Secretary, National Gallery Society of Victoria, 180 St. Kilda Rd., Melbourne 3004, Australia, tel: (Melbourne) 62-7411.

12

3rd Annual Kite Exhibition (March 12-13), and kite-making demonstration indoors, with admission fees ($2 adults, $1 children through 17, or Science Center membership card), at Pacific Science Center, Seattle, WA. Contact: John Van Gilder, Washington Kitefliers Association, Pacific Science Center, 200 2nd Ave. N., Seattle, WA 98109, tel: (206) 938-0550.

Plaza Camino Real Kite Day, Plaza Camino Real shopping mall, Carlsbad, CA, kite-making and fighting demonstrations conducted by Tom Joe. Sponsor and contact: Plaza Camino Real, (714) 729-7927.

(A mid-March Saturday) **Annual Sea Ranch Kite Fly,** on meadows near lodge, Sea Ranch, CA. Sponsor and contact: Sea Ranch Association, P. O. Box 16, Sea Ranch, CA 95497, tel: (707) 785-2444.

19

10th Annual Oahu Kite Flying Contest, with hundreds of kites, many trophies, at Kapiolani Park, adjacent to Waikiki, Oahu, HI. Sponsors: Honolulu Dept. of Parks and Recreation, KJMB TV and Radio and Hawaiian Electric Co. Contact: Don Fujii, 1201 Ala Moana Blvd., Honolulu, HI 96814, tel: (808) 524-1257.

7th Annual Radio Hauraki Auckland Kite Festival Auckland Domain, New Zealand, with thousands of kites and people. Contact: C. P. Croft, 19 McCracken Ave., Hamilton, New Zealand, tel: (New Zealand) 64-399.

4th Annual Seattle Center Kite Contest, at Seattle Center, Seattle, WA. Contact: Marty Dimock, Seattle Center, Inc., Seattle, WA 98109, tel: (206) 625-4231.

2nd Annual Palm Springs Kite Festival, Ruth Hardy Park, Palm Springs, CA. Sponsors: Our Lady of Solitude Church and The Fun Factory. Contact: Mary Jane Miller, The Fun Factory, 278-A N. Palm Canyon, Palm Springs, CA 92262, tel: (714) 325-2894.

20

49th Annual Zilker Park Kite Tournament, Zilker Park Kite Field, Austin, TX. Sponsors: Austin Exchange Club, Park and Recreation Dept. and Radio KOKE. Contact: Richard S. Robertson, 5401 Shoalwood Ave., Austin, TX 78756, tel: (512) 453-7174.

6th Annual Gunston Hall Kite Festival, a non-competitive fly, Gunston Hall Plantation, Lorton, VA. $2 adult admission fee, children through 16 free with adult and kite. Contact: Louise Stockdale, Gunston Hall Plantation, Lorton, VA 22079, tel: (703) 550-9220.

5th Annual New Orleans Kite Festival, with thousands of people, Audubon Park levee, New Orleans, LA. Sponsors: The Kite Shop – Jackson Square and WRNO Radio. Contact: Sally Fontana, The Kite Shop – Jackson Square, 542 St. Peter St., New Orleans, LA 70116, tel: (504) 524-0028.

26

47th Annual Carmel Kite Festival, Carmel Middle School, Carmel, CA. Sponsors: Carmel Recreation Dept. and Carmel Lions Club. Contact: Pat Cunningham, Carmel Unified School District, Drawer U-1, Carmel, CA 93921, tel: (408) 624-3342.

15th Annual Kite Contest, Brackenridge Park, San Antonio, TX. Sponsors: KITE Radio and City Parks and Recreation Dept. Contact: Phylis Robinson, City Parks and Recreation Dept., 950 E. Hildebrand, San Antonio, TX 78212, tel: (512) 828-8111.

11th Annual Smithsonian Kite Carnival, with many trophies, Washington Monument grounds, Washington, DC. Sponsors: Smithsonian Resident Associates, National Capital Parks Commission and DC Recreation Dept. Contact: Tina Parker, Smithsonian Resident Associates, Smithsonian Institution, Washington, DC 20560, tel: (202) 381-6725.

Spring Kite Festival, a non-competitive fly, Venice beach at Washington, Venice, CA. Sponsor and contact: Let's Fly a Kite (c/o Gloria Lugo), Fisherman's Village, 13763 Fiji Way, Marina del Rey, CA 90291, tel: (213) 822-2561.

27

2nd Annual Takoma Park Kiteflying Contest, Takoma Park Recreation Center, Takoma Park, MD. Sponsor and contact: Takoma Park Dept. of Recreation (c/o Belle Ziegler), 7500 Maple Ave., Takoma Park, MD 20012, tel: (301) 270-4048.

April

2

12th Annual Outa Sight Kite Flite, Southpark Shopping Center, Charlotte, NC. Sponsor: Charlotte Parks and Recreation Commission. Contact: Joyce Hoyle, P. O. Box 4008, Charlotte, NC 28204, tel: (704) 374-2884.

3rd Annual Nashville Kite Flite, Steeplechase Area, Percy Warner Park, Nashville, TN. Sponsors: Horizons, Ltd., and Metro Nashville Park Board. Contact: Natalie May, Horizons, Ltd., 2224 Bandywood, Nashville, TN 37215, tel: (615) 297-6896.

Annual Super Kite Saturday, kite-making, displays, demonstrations, film and contest, Joslyn Center, Torrance, CA. Sponsor: City of Torrance. Contact: Torrance Park and Recreation Dept., 3031 Torrance Blvd., Torrance, CA 90503, tel: (213) 328-8362.

3

7th Annual Amelia Earhart Memorial Kite Fly, campus of Illinois Institute of Technology, 31st and Federal, Chicago, IL. Sponsors: Illinois Institute of Technology and Radio WOUI. Contact: David Dixon, 3241 S. Federal, Chicago, IL 60616, tel: (312) 567-3088.

2nd Annual Sunshine Kite Festival, on sand south of Redondo Beach Pier, Redondo Beach, CA. Sponsor: Sunshine Kite Co. Contact: Randal Joe, Sunshine Kite Co., 233-B Fisherman's Wharf, Redondo Beach, CA 90277, tel: (213) 372-0308.

Great Pacific Rim Kite Festival, Vanier Park, Vancouver, B.C., Canada. Contact: High as a Kite (c/o Marcia Madill), No. 201, 131 Water St., Vancouver, B.C., Canada V6B 4M3, tel: (604) 687-8041.

4

(Sometime between April 4 and 8) **5th Annual All-City Kiteflying Contest,** Franklin Park, Spokane, WA. Sponsor: City of Spokane Park Department. Contact: Doug Carter, Room 501, City Hall, Spokane, WA 99201, tel: (509) 456-2620.

8

Good Friday, traditional kiteflying day in Bermuda.

6th Annual Great Delaware Kite Festival, featuring a kite duel with former Lt. Gov. Eugene Bookhammer, Cape Henlopen State Park, Lewes, DE. Sponsor: Lewes Chamber of Commerce. Contact: David Wood, Lewes Chamber of Commerce, P. O. Box 1, Lewes, DE 19958, tel: (302) 645-6536.

9

South Coast Village Kite Festival, a non-competive fly, Costa Mesa, CA. Sponsor and contact: Come Fly a Kite, South Coast Village, 3850 S. Plaza Dr., Santa Ana, CA 92704, tel: (714) 545-2849.

10

High as a Kite Fly-in, Stanley Park, Vancouver, B.C., Canada. Contact: High as a Kite (c/o Marcia Madill), No. 201, 131 Water St., Vancouver, B.C., Canada V6B 4M3, tel: (604) 687-8041.

16

Wilbur Wright born, 1867.

(Tentative date) **Dogwood Arts Festival Kite Contest,** Knoxville, TN. Sponsor: Wendy's Old-Fashioned Hamburgers. Contact: Ed Sear, Ad Comm, Inc., 320 Cedar Bluff Rd., Suite 215, Knoxville, TN 37919, tel: (615) 690-0472.

22

Welcome Bob and Hazel Ingraham Dinner, Bixby Park Clubhouse, Long Beach, CA. Sponsor: Long Beach Recreation Dept. Contact: Maria Sharpe, Long Beach Recreation Dept., 155 Queens Way Landing, Long Beach, CA 90802, tel: (213) 432-5931.

23

51st Annual Long Beach International Festival of Kites, April 22-24 program, with retail display booths, on beach at foot of Junipero, Long Beach, CA. Sponsor: Long Beach Recreation Dept. Contact: Maria Sharpe, Long Beach Recreation Dept., 155 Queens Way Landing, Long Beach, CA 90802, tel: (213) 432-5931.

4th Annual Freeman Park Fly-In, Idaho Falls, ID. Sponsor and contact: Idaho Falls Parks and Recreation Dept., Box 220, Idaho Falls, ID 83401, tel: (208) 522-3653.

Rankin Lions Club Kitefly, Rankin, TX. Sponsor and contact: Rankin Lions Club (c/o Herb Frederick), P. O. Box 503, Rankin, TX 79778, tel: (915) 693-2283.

24

Long Beach Team Kite Fight (Southern CA vs. Northern CA), on beach at foot of Alamitos, Long Beach, CA. Sponsor and contact: Long Beach Recreation Dept. (c/o Maria Sharpe), 155 Queens Way Landing, Long Beach, CA 90802, tel: (213) 432-5931.

11th Annual WIND Radio Kite Fly, Grant Park, Chicago, IL. Sponsors: WIND Radio and Chicago Park District. Contact: Jill O'Mahoney, WIND Radio, 625 N. Michigan Ave., Chicago, IL 60611, tel: (312) 527-2170.

30

11th Annual Maryland Kite Festival, with medallions and large cash awards, Inner Harbor, Baltimore, MD. Kites may be shipped in advance. Sponsor and contact: Maryland Kite Society (c/o Rick Kinnaird), 3206 Greenmead Rd., Baltimore, MD 21207, tel: (301) 655-9320.

May

3

Hamamatsu Kite Festival, May 3-5, Hamamatsu, Japan. For further information, see pages 36-39.

(Or May 5) **Hoshubana O-dako Festival,** Hoshubana, Japan. For further information, see pages 36-38.

5

Boys Day in Japan, where fish kites fly from rooftops, one for each boy in the house.

8

National Kite Day: Fly your kites!

National Kite Day Fly, with $1000 for largest kite, other big prizes, Polo Field, Golden Gate Park, San Francisco, CA. Sponsor and contact: Come Fly a Kite, Inc. and Kiteworld (c/o Dinesh Bahadur), 900 North Point, Ghirardelli Square, San Francisco, CA 94109, tel: (415) 411-2965.

(Or May 15) **3rd Annual WIBA-FM Kite Fly,** Warner Park, Madison, WI. Sponsor and contact: WIBA-FM Radio (c/o Minnie Murphy), 2651 Fish Hatchery Rd., Madison, WI 53713, tel: (608) 274-5450.

9

(Tentative date) **3rd Annual Bushnell Park Kite Day,** Downtown Hartford, CT. Sponsor and contact: Greater Hartford Kite Society (c/o Tim Wolf), 50 Castlewood Rd., W. Hartford, CT 06107, tel: (203) 521-0181.

11

David M. Checkley files patent for paper bag kite, 1973.

14

(Or May 21) **9th Annual Great Boston Kite Festival,** with hundreds of kites and many prizes but essentially non-competitive, Franklin Park, Boston, MA. Sponsor and contact: Committee for the Better Use of Air (c/o Gil Fishman), 23 Arrow St., Cambridge, MA 02138, tel: (Clara Wainwright) (617) 646-5194.

15

4th Annual Kite Day, a non-competitive fly, Silver Springs Park, Stow, OH. Sponsor: Parks and Recreation Dept. Contact: Tom Troyer, 4174 Kent Road, Stow, OH 44224, tel: (216) 688-6041 or 688-1708.

Southern CA Team Kite Fighting Tournament, Redondo Beach Pier, Redondo Beach, CA. Sponsors and contacts: Redondo Beach Park and Recreation Dept., 415 Diamond St., Redondo Beach, CA; Sunshine Kite Co. (Randal Joe), 233-B Fisherman's Wharf, Redondo Beach, CA 90277, tel: (213) 372-0308.

21

Two Feet in the Sky Kite Fly, Venice City Beach at Washington, Venice, CA. Sponsor and contact: Two Feet Ahead (c/o Ron Kay), 13163 Mindanao Way, Marina del Rey, CA 90291, tel: (213) 822-8230.

25

G. T. Woglom first experiments with five kites lifting a basket of homing pigeons, 1895.

28

2nd Annual Kite Meet, Robert Savitt Park (Sandy Beach), Juneau, AK. Sponsor and contact: Juneau Parks and Recreation (c/o James Dumont), 155 S. Seward, Juneau, AK 99801, tel: (907) 586-3300.

30

First photograph from a kite in America is taken by William A. Eddy, 1895.

Do you have a date for the Calendar page? Send it to *Kite Lines*, 7106 Campfield Road, Baltimore, MD 21207, tel: (301) 484-6287. Deadlines are April 1 for Summer, July 1 for Fall, October 1 for Winter and January 1 for Spring. Listing does not constitute endorsement by AKA, but is done as a service. Events are free and competitive unless otherwise specified. Schedule is subject to change; visitors should verify dates beforehand. To be listed, events must be well-established and open to adults. Send the following information: Name of event, date (or closest probable); which annual; whether competitive and prizes or awards (if unusual); entry fee (if any); site; city; sponsor(s); contact name, mailing address and telephone number. (Where sponsors number over three, none will be listed.)

◇

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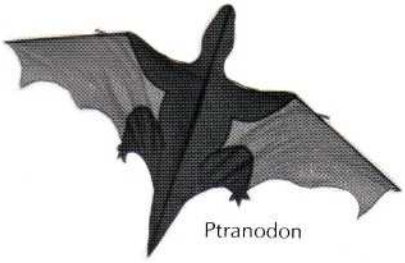
Canada Goose

Super Bat

CANADA GOOSE: 70" wingspan, 36" tall. Brown body, black neck, white cheek, brown eyes, white bottom, black legs; with carrying bag **$25.50**

SUPER BAT: 72" wingspan, 45" tall. Black head, red body and white eyes with black eyeballs; with carrying bag **$27.50**

Black Bat

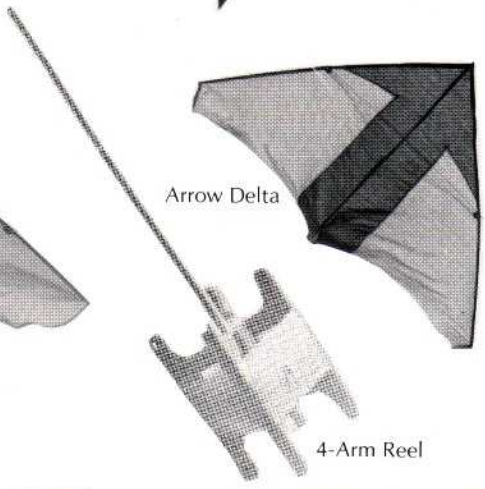


Ptranodon

BLACK BAT: 72" wingspan, 43" tall. Solid black with white eyes and black eyeballs; with carrying bag. *Reg. $25.50—save $3* **$22.50**

New! PTRANODON: 74" wingspan, 45" tall. Red and blue; with carrying bag **$26.50**

Super Eagle



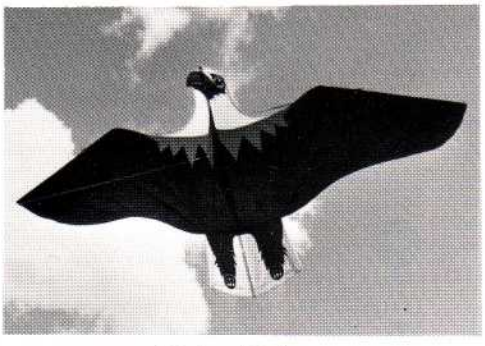
Arrow Delta

4-Arm Reel

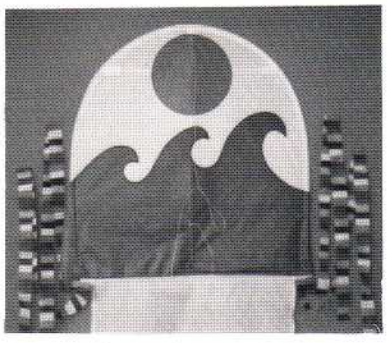
SUPER EAGLE: 80" wingspan, 40" tall. Head and tail navy blue, red wings; with carrying bag **$27.50**

ARROW DELTA: 82" wingspan, 45" tall. Red and blue; with carrying bag. *Reg. $20—save $4.50*. **$15.50**

NATIONAL EAGLE: 70" wingspan, 33" tall. White head and tail, body red, black, brown or navy blue. Head and talons painted for realism; with carrying bag **$27.50**



National Eagle



Morning Sun-Rainbow

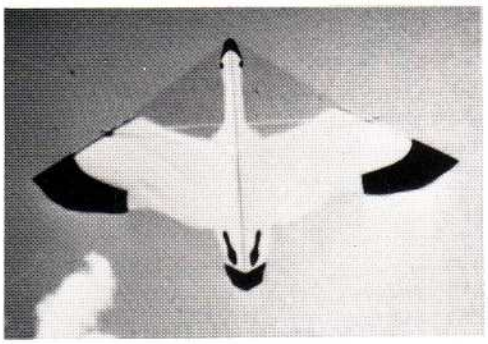
SNOW GOOSE: 70" wingspan, 36" tall. White body with black wing tips, red beak, black eyes and red legs; with carrying bag . . . **$25.50**

MORNING SUN-RAINBOW: 32' long. White ripstop nylon background with 2-color sewn applique, red sun, blue waves; body in 7 rainbow colors. *Reg. $24—save $6.50* **$17.50**

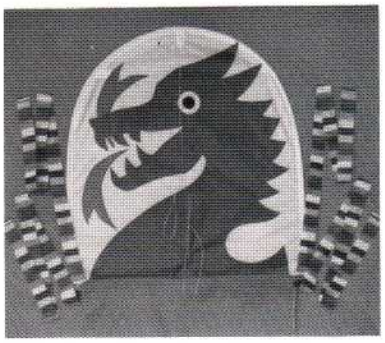
DRAGON RAINBOW: 32' long. Face: white ripston nylon background with appliqued blue head, red tongues, black eyeball. Body: 7 rainbow colors. *Reg. $24—save $6.50*. **$17.50**

4-ARM REEL: With about 800' nylon twine, 40-lb. test, with handy swivel snap *($20 if you order a kite at the same time—save $5)* . . . **$25**

2-ARM REEL *(not shown)*: With about 300' nylon twine, 40-lb. test, with handy swivel snap *($3 if you order a kite at the same time—save $3)* **$6**



Snow Goose



Dragon Rainbow

Add $2.50 to cover postage and packing costs. Washington state residents add 5% sales tax.

Come Fly A Kite

The invitation is still open

Come Fly a Kite started with the feeling that kites should be shared with everyone. Hard work and a willingness to show people that they too could master kites have helped us grow, but it's people and their fascination for flight and the kites affection for them that has been the real story.

Over 2,500,000 people have visited Come Fly a Kite galleries. More and more are returning for their second, third and fourth kites. Are we tired of teaching people to fly? On the contrary, we love it more than ever.

Come Fly a Kite

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Atlanta, GA

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