Ktelines

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SPRING 1984
Vol. 5 No. 1

quarterly journal of the worldwide kite community

SHIRONE'S Destruction Derby

The New STUNTERS Compared

Your LINE: It Flies, Too!

Grab our line of best sellers.

The hottest selling licensed characters are now flying with Spectra Star Kites®. They include Star Wars: Return of the Jedi,™ Masters of the Universe,™ GARFIELD, MR. S. SNAKE, Q-bert™ and Mr. T. We feature these famous characters on our die-cut Figure™ Kites, Eight Panel Box Kites, Mylar® Dragons and Octopus Kites.

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Volume 5, Number 1, Spring 1984

Departments

Cover

A kite twists during a rescue effort in Shirone, Japan. One of some 200 kites made by 13 village teams, it will be intentionally destroyed in a five-day period of battle. The giants are built to tangle with opposing kites across a canal. Their ropes are then used for tugs-of-war between the villages. *(See story on pages 20-22.)* Photograph courtesy the Shirone Giant Kite Battle Association.

KiteLines ISSN 0192-3439
succeeding *Kite Tales*

Kite Lines is the comprehensive international journal of kiting and the only magazine of its kind in America. It is published by Aeolus Press, Inc., of Baltimore, MD, with editorial offices at 7106 Campfield Road, Baltimore, MD 21207, telephone: (301) 484-6287.

Kite Lines is endorsed by the International Kitefliers Association and is on file in the libraries of the National Air and Space Museum, Smithsonian; the National Oceanic and Atmospheric Sciences Administration; the National Geographic; and the University of Notre Dame's Sports and Games Research Collection.

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Kite associations and clubs are located around the U.S. and the world. *Kite Lines* works for and with all of them and maintains an updated file on them. Write for information about your nearest group.

Subscriptions to Kite Lines: In the U.S., $9.00 for one year (4 issues), $17.00 for two years (8 issues); in Canada and Mexico, $10.00 for one year, $19.00 for two years; in all other countries, $11.50 for one year, $22.00 for two years. Special air mail rates are available at $4.00 per year additional for Central America, $6.00 per year additional for Europe, Israel, South America or North Africa, and $8.00 per year additional for all other countries. Foreign drafts must be in U.S. dollars through a U.S. bank or the post office. Single copies of current or back issues are available for $3.00 each from America's finest kite stores or the journal offices.

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

Advertising rate and information sheet is available upon request.

Contributions to *Kite Lines* of information, articles and photographs are always invited. *Notification* is required if contribution is submitted to any other publication. Return of any material must be requested and a self-addressed envelope with adequate postage provided. First rights reserved in materials published unless otherwise specified. Writers and photographers should request our guidelines before submitting. 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, staff or advisory panelists.

Closing Dates for advertising and articles are 8 weeks before publication.

Fly the exciting, dazzling...

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One-of-a-kind works of art. Each Grandmaster Kite is individually hand-crafted and hand-painted by a master kitemaker and flight-tested by a master kiteflier. The color combinations of each design vary, and new designs are constantly being added to the collection. To maintain quality control, our present production is limited to 3000 kites per year.

But the real joy of a Grandmaster Kite is in the flying. When you get it up and are its master, you will exult in its power—its gentleness—its instant response to your will and artistry—its glorious colors and design enhanced by its beauty of motion. Indian Champion kitefliers have already pronounced the Grandmaster to be the most responsive kite ever made, superior to the fine-tuned fighter kites made in India. But because each kite is made of Mylar™, with a bow of fiberglass rod and bamboo spine. Grandmaster Kites are as nearly indestructible as technology permits.

The Grandmaster is produced in two models: the Competition and the Fast. For the experienced flier, the Competition or the Fast will cover all wind conditions. For the novice flier we suggest beginning with the Fast, then stepping up to the Competition when his or her skills are developed. The two models are the same in size (24x29") and appearance. Only the speed of response varies.

The price: $21.00, plus $3.50 per kite for shipping via UPS, insured (Air Freight east of the Miss.). Draw crowds—create excitement—order your Grandmaster Kite today!

Shipment guaranteed within eight days after receipt of order.

To order, fill out form and send today to:

GRANDMASTER™ KITES
P.O. Box 12377 Holladay Park Station
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(Telephone: 503-255-1785)

Dealer inquires invited.

Note: Shipping charges apply to USA and Canada only. For foreign orders, please remitt in US dollars and add $12.00 for Parcel Post Air Freight.

Dear Sirs: Please send me the following GRANDMASTER™ KITE(s): (Please Print)

Quantity	Fast or Competition	Symmetrical or asymmetrical design preference	*Regular price each $21.00	**Custom order price each $31.00	Total price
$3.50 shipping, handling and insurance, per kite					
☐ Grandmaster recommended line, 3-ply waxed linen, 1000 feet $8.00 + 75¢ shipping.			☐ Grandmaster recommended reel, $2.75 + 75¢ shipping.		
				Total	

Enclosed is my ☐ check or ☐ money order made payable to Grandmaster Kites.

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

*Regular orders will receive one of the illustrated designs or a new design.
**To custom order a specific design or specific colors, include $10.00 each in addition to the regular charge and expect a delay in shipping time.

GRANDMASTER™ KITES

Grandmaster Kites are sold with an unconditional guarantee. If your Grandmaster does not come up to all of your expectations, just return the kite to us within 30 days for a total refund of your $21.00.

Letter from the Publisher

Phone rings in the office. A subscriber from Pennsylvania calling. He asks what the Federal Aviation Administration says about kite altitude. I quote him the only rule for kites under five pounds: to fly in a manner not to endanger persons, property or other aircraft. That's it. A seemingly simple law.

The reader takes it so and expresses relief because his kite is only nine ounces and he wants to fly it to 2000 feet in his favorite park. The skies over this park are a training area for pilots.

I warn him that in fact the very general wording of the law does not relieve a kiteflier from responsibility at all. On the contrary: one must carefully *think* about safety under this law. It's not as easy as following a law that is spelled out in neat, if daunting, detail for kites over five pounds.* If an accident occurs involving your kite, whatever its weight, you have demonstrated that you did *not* fly in a safe manner. If pilots are part of your kiteflying environment, you should consider them in your "defensive flying" strategy before you put your kite up. Even a lightweight kite can entangle the props on a small plane.

The reader carries on in a tone that suggests he thinks I agree with his "righteous" views. He hangs up before I can fire off a torpedo rebuttal. I sit glumly next to the phone on its hook.

I believe, as much as anyone, in the "right to fly" and the pleasures and values of kiting. But I'm unwilling to let a life be lost to demonstrate my belief.

The *Kite Lines* office has undergone some changes recently. In particular, we want you, our readers, to know that Leonard Conover has accepted a position on our staff as Associate Editor. Many of you know Len as the Founder and President of the Greater Delaware Valley Kite Society and the former editor of its newsletter "Tight Lines." Leonard brings to the magazine not only experience, not only a love of kites, but a great deal of talent, energy and dedication—the last trait defined as willingness to work for the picayune salary we can pay him. We know that you will appreciate Len Conover, if unconsciously, through the magazine, which already reflects his work.

Valerie

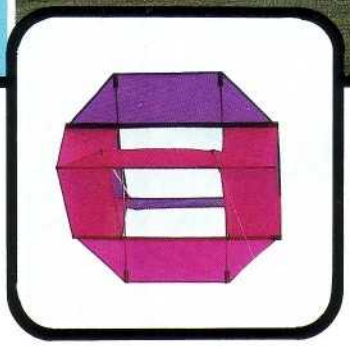
*See FAA Regulations Part 101. Copies of this section are available from *Kite Lines* free to readers upon request.

Bright and Beautiful...

Designed by Mel Govig for Cloud Pleasers.

The Cloud Seeker

A box kite that rewards both the eye and the hand.



Model S37
37 sq. ft. of area (64 x 56 x 28")
Graphlex™ struts
$125

Model S15
15 sq. ft. of area
(1m x .87m x .43m or 39 x 34 x 17")
hardwood struts
$50

*Colors:**
A. purple and pink
B. orange and yellow
C. black and red
D. purple and yellow
E. black and pink
*Special color combinations can be custom made at 20% increase in price within 20- to 30-day period from receipt of order.

Mel Govig talks:

"It started when a guy in New Hampshire named Alan Carter wrote to me. He was trying to make a box kite from page 183 in Pelham's *Penguin Book of Kites*. It would fly, but in high winds it would explode. He asked me why. The only way I could tell was to make the kite myself. That started me off on cellular kites.

"After several successful versions of this highly tensioned box, I attempted to simplify it and came up with a pleasing, practical combination of elements with an extra surprise — visual interest in flight. It was luck, hunches, pieces of experience combined. And it was a bit of Hargrave, Cody, Madiot and — especially — David Pelham, each reworked and mixed together. I don't take credit for much, really.

"But I think you will like the Cloud Seeker. It flies rather light on the line compared to similar-size boxes, is very stable, has plenty of lift and life to it. And by using different colors of nylon, the blending of hues in flight is very pleasing. I also like the squared shape which — at the kite's typical angle and altitude — looks like a window cut into the sky.

"I like to make kites for my friends, but I knew I couldn't make as many of these as there would be people to want them. I was very happy that the Cloud Pleasers people saw the Seeker as a suitable addition to their line of fine quality rip-stop nylon kites. They are making the Cloud Seeker with impeccable construction that goes well beyond my sewing abilities.

"Already these consistently beautiful Cloud Seekers are coming out and being snatched up by kite-fliers who like their special combination of quality, authoritative flight, visual interest — and simplicity of assembly. The kite rolls open and you easily insert the struts. All the kites break down to within international mail limits. The kite is pre-bridled and you simply attach your line to the towing point — and let the Cloud Seeker lift out of your hands and into the sky.

"One of the special delights of this kite is that it's easy to 'train' or stack. Try two or three or more together, using my easy instructions in with each kite.

"Also a surprise is that these kites can *stunt* on two lines! Very novel to see boxes looping in the sky. My instructions tell you how to do it.

"I hope you will like this kite as much as I do."

You can have one now. Ask for the Cloud Seeker at your nearest kite store. Or order it shipped directly and promptly to you in your choice of colors available. It will come in its own color-coordinated cloth bag, complete with struts and instructions, bridled and ready to fly.

Cloud Seekers, like all Cloud Pleasers kites, are guaranteed. If the Cloud Seeker is not satisfactory to you after your first 15 days with it, return it to Cloud Pleasers for a refund of the full amount you sent — no questions asked.

To: Cloud Pleasers (PLEASE PRINT)
Bruce and Carolyn Kennington
26304 Forest Vista Drive
Clarksburg, MD 20871
Or telephone us at 301-253-3908

Please send me the following Cloud Seeker kite(s):

Quantity	Model S15 or Model S37	Color Combination	Price each	Total price
			MD residents add 5% tax	
			U.S. shipping	$ 2.00
			Foreign orders add extra for shipping weights of 2 lbs. for Model S15, 3 lbs. for Model S37	
			Total	

☐ Check ☐ COD Card No.

☐ VISA Exp. Date

☐ MasterCard Signature

Send to:

Name

Address

City State Zip

Telephone

Cloud Pleasers

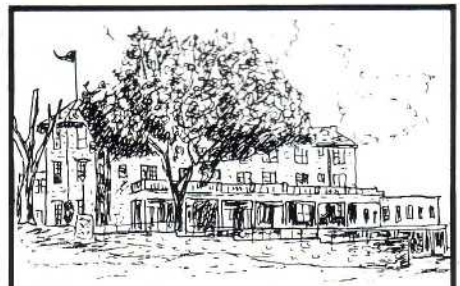
rainbow rhombus
48" x 24" x 48"

brooxes ⊞ boxes

produced and distributed by

KITES AWEIGH

6 Fleet Street, Annapolis, MD 21401 • (301) 268-6065



The Kite Retreat

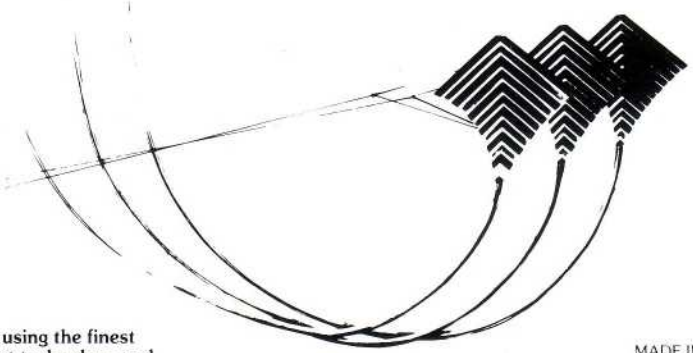
with the Maryland Kite Society
at historic Harpers Ferry, West Virginia

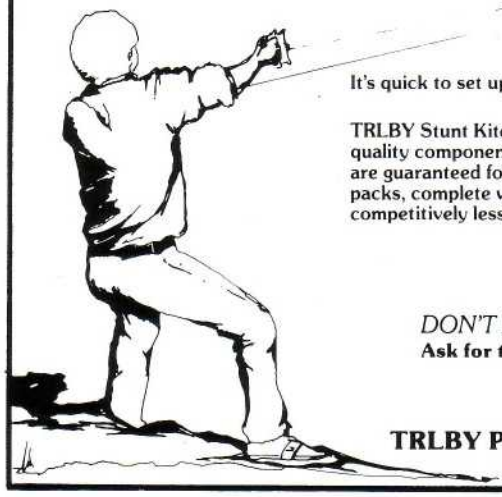
A great weekend away-from-it-all for kite enthusiasts will be held once again by the Society. Join us August 16, 17 and 18, 1984 at Hilltop House, a quaint hotel with great food, overlooking the scenic confluence of the Shenandoah and Potomac Rivers. Share in morning-to-night "show-and-tell" sessions and kiting camaraderie. A special feature of this Retreat will be the International Exposition of Small Kites (see announcement on page 12). Charges are only to cover costs, $50 per person per day, double occupancy (meals included with lodging). A one-day ($50) deposit must be made beforehand. For map, schedule and other information, contact Leonard Conover, P. O. Box 7554, Gwynn Oak, MD 21207; telephone 301/484-6287.

Is the wind having more fun with your kite than you are?

TRLBY lets you experience the wind with exhilarating dual-control. Aerodynamically designed, TRLBY Stunt Kites are capable of precision stunt maneuvers creating hair-raising, crowd-pleasing performances. Colorful 45 foot tails dramatize each spectacular move.

TRLBY's unique self-adjusting design never requires tuning.





It's quick to set up! It's easy to fly!

TRLBY Stunt Kites are manufactured using the finest quality components and state-of-the-art technology and are guaranteed for one full year. Sold in single and multi-kite packs, complete with nothing else to buy, at a price that is competitively less...

MADE IN U.S.A.

trlby KITES ™

DON'T LET THE WIND HAVE ALL THE FUN!

Ask for the TRLBY Stunt Kite wherever fine kites are sold.

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Higher Commitment

We're very high minded when it comes down to giving kite retailers what they want most in a line of cloth kites—Quality and Service.

Fabric Design's committed to excellence in both with SKYLINE,© a handcrafted, highly decorative, guaranteed-to-fly line of quality cloth kites. Every order backed by first-rate, fast, friendly service.

Such commitment to quality and service doesn't cost one cent more, so for a free color catalog and price list call or write today.

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Dragons • Diamonds • Mini Diamonds • Apollo Dual Control Delta • Rainbow Box Kite • Windsocks

Letters

COMMENTS ON EDEIKEN TRAGEDY

We were saddened to read of the death of Steve Edeiken in a tragic accident last September (*Kite Lines*, Summer-Fall 1983).

Here in the UK over 70 clubs are now flying ram-air canopies developed from the parafoil. Heights of 2,000 feet and over are regularly achieved and 50,000 flights per year is not an uncommon number.

I realize that it was not Steve's intention to fly; nevertheless there is a lesson to be learnt from the incident. Since the early sixties we have identified the fundamental safety requirement of having our canopies towed by a vehicle and *never* anchored. In an incident such as the one which befell Steve, the driver of the tow vehicle simply has to back off to lower the canopy (or kite) to the ground.

For your information I enclose a copy of the 12 Mandatory Safety Requirements which we have identified for our sport, out of the 70-page operating manual which we publish.

Andrew Wakelin
Leicester, England

Mr. Wakelin is the Editor of Skywalker, *the journal of the British Association of Parascending Clubs (BAPC), Room 6, Exchange Buildings, 34-50 Rutland Street, Leicester LE1 1RD, England.*

Interested readers may obtain a copy of the Mandatory Safety Requirements by writing directly to Kite Lines.

Several items seem important to me:

First, the weather was not favorable, in that the wind was insufficiently steady and/or strong for flying that kite.

Second—and most important—was the lack of control. Tying the kite to two dump trucks effectively immobilized the end of the flying line so that the kite could only be landed if the wind slackened or the line was cut. A proper winch with a drum capable of holding all of the flying line and of pulling the kite down should have been used. An alternative method is to anchor a swivel snatch block and run the flying line through it, attached to a heavy vehicle capable of pulling the kite down. Such equipment is expensive but necessary.

People have to be kept away from the line and other equipment in case a failure should occur.

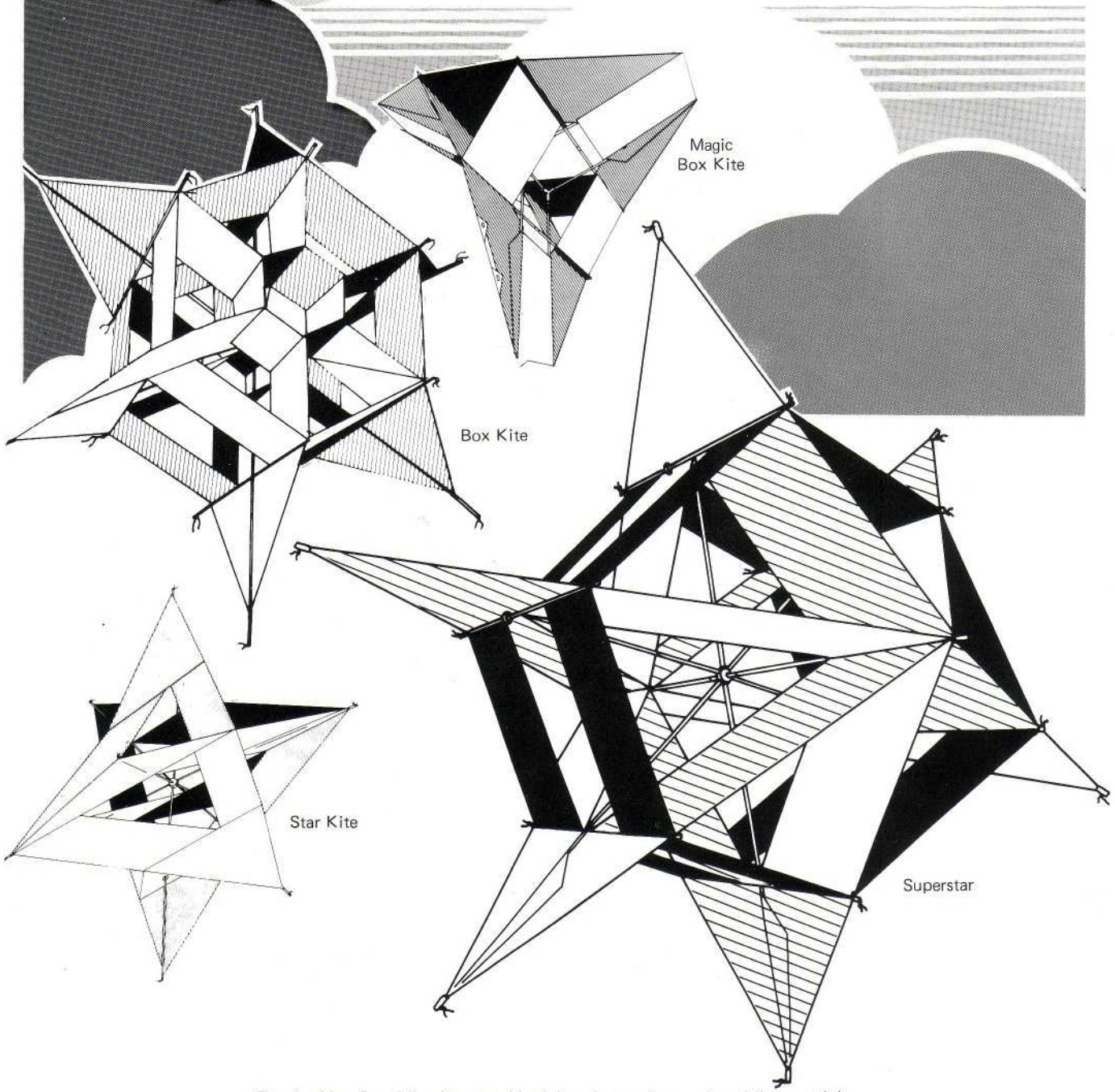
Before the kite is launched, there should be a plan for its recovery.

Finally, unless the kite flew better later, it could not be considered flying success-

Continued on page 14 . . .

A WALDOF ON YOUR LINE PUTS YOU HIGH ABOVE THE REST

Prof. Waldof's* Kites. Celestial seducers...surpassing all others in the sky; captivating with their spectacular performance, their splendid, vibrant colors; the ultimate in appeal for their beauty, versatility, durability.



Carried by fine kite, toy and hobby shops throughout the world.

WHAT'S UP

4500 Chagrin River Road, Chagrin Falls, Ohio 44022. (216) 247-4222

*Exclusive U.S. agent. Wholesale to the trade only. Dealer inquiries invited.

a challenge from William R. Bigge and KITE LINES

The I.E.S.K. Gnat

announcing the INTERNATIONAL EXPOSITION OF SMALL KITES Harpers Ferry, West Virginia, USA — August 18, 1984

Builders should consider that a 3-inch kite is so small that it will take MORE time to build a decently flyable sample than it would to build one of 6-inch size. — Bill Bigge

THE BACKGROUND

Many kite competitions recognize the "Smallest Kite Flown." It is easy to measure a kite's size by longest dimension or by lifting area, but sometimes disputes arise over what constitutes "flight." To avoid this, some organizers have recast their contest category as, for example, "Best-Flying Three-Inch-or-Smaller Kite." Whatever the identity of the category, it is difficult to judge and it often attracts too few entries for meaningful awards. The result has been a slight disenchantment with tiny kites in competitions. This is unfortunate for the scattered specialists in small kites, who really need an arena of their own.

William R. Bigge, one of the foremost makers and fliers of small kites, suggested that KITE LINES run a competition that would reach kitefliers around the globe. We agreed to give it a try.

THE PURPOSES

(1) To explore, stimulate and enjoy small size in kites; (2) To balance the public attention paid to giant kites by spotlighting tiny kites—their exacting challenges and special opportunities; (3) To find and recognize one or more examples of "Best Small Kite"; and (4) To test the limits of "small" in kites—intending not necessarily to reward the smallest but not to overlook it.

THE REWARDS

$100 (U.S. or converted to the currency of recipient's choice) will be awarded to the Best Small Kite as determined by the judges. Additional cash awards will be made in the form of Lawrence Hargrave Australian **$20** notes. Each kite entered will earn a wallet-size plasticized certificate, and all participants will receive a special magnifying glass. Also many of the kites will be shown, full-size, in a future issue of KITE LINES.

THE DEADLINES

The following dates are set to allow plenty of time for advance indoor testing:

August 4, 1984: deadline for receipt of entry form.

August 16, 1984: deadline for receipt of shipped kites.

August 18, 1984: Exposition Day, Harpers Ferry, West Virginia, USA.

THE JUDGES:

CHIEF JUDGE: William R. Bigge

Assistants: William A. Rutiser and G. William Tyrrell, Jr.

Photographer: Theodore L. Manekin

THE RULES & REGULATIONS

1. Judges will score 50% for craftsmanship and 50% for beauty and flight performance, with an emphasis on stability and range of airspeed in which the kite will fly. Beauty will be judged in the air. **2.** Kites will be flown indoors by ambulatory judges. The kites should not require more than a 5mph breeze to fly. All kites must be capable of maintaining a string angle of not less than 22½ degrees above the horizontal to qualify for competition.

3. The kite, in flying condition and including fully extended tail(s) if any, must fit inside a 3"dia., 3"-long cylinder, such as a stack of masking-tape cores.

4. The Exposition is Open Class; that is, an entrant, whether "professional" or "novice," 8 years old or 80 years old, enters on an equal basis with all other entrants. The judges and KITE LINES staff may not enter kites.

5. The kite may be of any design but must be made by the entrant. Special encouragement is extended to kites that have never been done in miniature before.

6. An entry form (or facsimile) must be submitted in advance. Included with the entry form must be an adequate drawing of the kite and a brief description of how it was made, materials and their sources, tools and flying characteristics. The builder may indicate the reason for the design used and comment on the design as adapted to small kites.

7. Entrants may attend the Exposition in person and fly their own kites. Or they may ship their kites to a proxy flier (any willing local kiter) or to the judging committee.

8. Ship your kite in a reusable container to: IESK, c/o KITE LINES, 7106 Campfield Road, Baltimore, Maryland 21207, USA. Consider insurance for your kite. Be sure to include with the kite any special instructions for flying it and any special line or apparatus required. Return shipments of entries will be made at KITE LINES expense within 20 days after the judging. Entrants may instruct that the kites be retained for archival uses.

9. Entrants may enter more than one kite. All kites entered will be flown and judged.

10. KITE LINES reserves the right to photograph any kite entered and feature it in the journal, possibly with descriptions and measurements.

11. KITE LINES and all participants involved in the Exposition shall not be liable for any loss, injury or damage to any person or property arising from the Exposition or the shipping related to it.

12. Decisions of the judges shall be final. ▽

cut out and send

THE ENTRY FORM

(Please print.)

_____

Name of kitemaker

_____

Address

_____

City, State, Zip Code, Country

_____

Telephone (include area code)

Check appropriate boxes:

☐ I will attend the Exposition in person.

☐ I will send my kite(s) to ☐ a proxy flier (name and address attached) or ☐ the judging committee.

I am attaching a drawing of my kite and a brief description of how it was made, material sources, tools and flying characteristics.

_____

Signature

_____

Date

Zen and the Art of the Yardstick Balance

. . . or How to Achieve Maxi-Accuracy on a Mini-Budget . . . by William R. Bigge

THE ZEN

In making this balance, I learned a few things and reinforced my belief that a simple homemade balance can work well if a few basic principles are followed. Attitude is more important than equipment. (See also *Zen and the Art of Motorcycle Maintenance.**)

THE BALANCE

The balance is made from a wooden yardstick, a few wire coat hangers, sewing thread, epoxy cement and counterbalance material, such as automotive wheel weights. It will weigh up to six pounds with an accuracy of 1/10 ounce or it can weigh 1/10 ounce with an accuracy of 1/1000 ounce. The basic components are the beam, two bearings and a movable weight (poise).**

THE BEARINGS

It is a good rule of thumb that the fewer the bearings (or knife edges) the better; that is, the more accurate the balance. The yardstick balance has about the same relative accuracy as a $180 physician's balance I bought recently, which has four levers and a dozen bearings. Some electronic balances are mechanically simpler, which reminds me: a balance with a pan may be in error by as much as the effect of air currents on the pan.

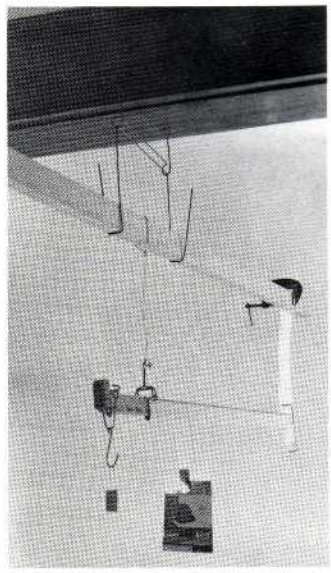
The bearings of this yardstick balance, being made from wire coat hangers, consist of round wire rolling on round wire, and are self-aligning. I was pleasantly surprised by the accuracy they provide.

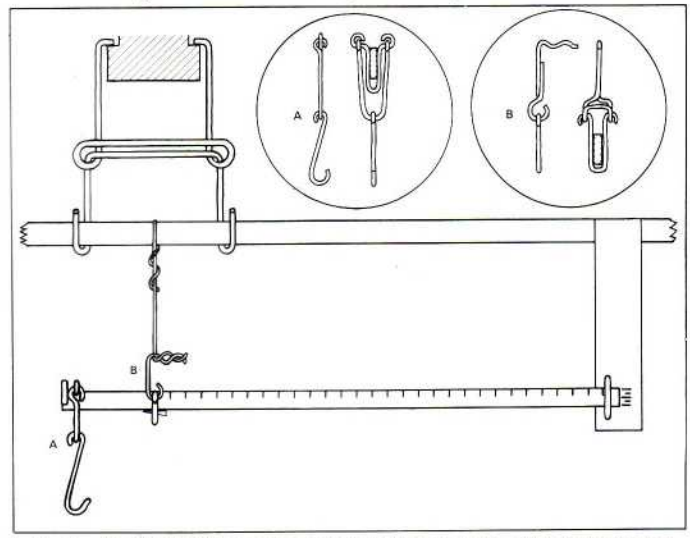
THE CENTER PIVOT

The center pivot of the balance is positioned at the 6" mark of the yardstick and needs to be located precisely. The easy way to do this is to bind it in place with thread so that it is firmly held but can still be moved before it is epoxied in place. To make this possible, two pins or bits of wire are pushed through the yardstick ½" on either side of the 6" mark. (I drilled holes first with a piece of 0.025" music wire ground to a point.) Starting at one pin, bind with thread around the center pivot, to the next pin, to the other side of the same pin, around the pivot to the last pin. The thread will hold the pivot in place by friction until you are ready to epoxy it in place.

*Robert M. Pirsig, *Zen and the Art of Motorcycle Maintenance*, New York: Bantam edition, 1975.

**Weights, either avoirdupois or metric, are available from H&R Corporation, 401 E. Erie Avenue, Philadelphia, PA 19134, per their March 1984 catalog. A set of six assorted weights is $7.50 plus shipping. Catalog number Q5416 includes weights from 10 to 50 grams; Q5417 includes weights from 50 grains to 2 ounces.





Left, the Yardstick Balance made by Bill Bigge; above, drawings of same.

THE END PIVOT

The end pivot assembly is located at the 1" mark and consists of three pieces of bent wire coat hanger. The first is epoxied to the yardstick like the center pivot. The other two pieces hang below and provide the hook for holding whatever you want to weigh.

After epoxying the center pivot in place, balance the beam again. Then balance with five units of weight suspended from the hook and one unit of weight near the 31" mark. The error in the pivot position is one-fifth of the offset of the weight in the opposite direction.

MARKING THE SCALE

Put a length of masking tape on the yardstick to cover the numbers from 6 to 36. The top edge of the tape should just touch the bottom of the 1/8" marks. Make longer marks every *ten* graduations and number them 1, 2, 3...24, the last one being at the 36" end of the yardstick. Each graduation now reads 1/10 ounce with a four-ounce weight. The scale can also be used with a 40-gram weight, reading to grams instead of ounces. The smallest practical weight would probably be 0.4 grams, with each division equalling 10 milligrams.

HANGING THE BALANCE

For ease of operation, the yardstick balance is hung in a doorway at about eyeball level. First, a length of coat hanger, bent into a large square U with eyes at its lower corners, is clipped to the door frame. Another large square U, *upside down*, with hooks formed at its two ends, holds the beam (6-foot length of 1x2). A piece of stiff cardboard 12" high and 4" wide is suspended from the end of the fixed beam and pencil marks allow the position of the yardstick to be gauged. A short piece of coat hanger fitted on the cardboard serves as a keeper for the end of the yardstick.

FINE ADJUSTMENTS

To make a movable weight for fine adjustments, cut a small piece of thin sheet metal (tin can or aluminum) about one or two inches square. Bend it in the middle to form a square U-shape that will clip on the beam. Mark it at its center so it can be gauged against the marks on the yardstick (tape).

The purpose of such finicking adjustment is not really to get the best possible results from the balance. In fact, when looking for the best possible results, one does not use a movable weight, but uses the substitution method. The purpose is to enable routine use with weights that can be used either on the hook or as movable weights, and with an accuracy not particularly worse than is implied by readability of the scale.

INCIDENTALLY

I think a good three-inch Eddy kite should weigh less that 30 milligrams, preferably about 10. Obviously, a minikite builder needs a smaller balance than this. I recommend a 22½" over-and-under balance made with spruce or basswood (1/16" x 1/4") and fine stainless steel wire. The hook arm is 10" long and the scale arm is 12" long, marked every 0.1". Such a scale would handle 10 grams very nicely.

Someone on a balance-making spree might make a still smaller one. I once made a balance which was intended for weights up to 100 milligrams, and it is in continual motion, swinging maybe 30 degrees, because of air currents. It uses torsional pivots and the cure for the jitters should be a vane in a nicely fitted box. Each of which is a story in itself. ◇

HOW TO MAKE A YARDSTICK BALANCE IN 10 EASY STEPS

1. **Cut wire coat hangers into required lengths and bend the pieces to shape.**
2. **Bind center pivot wire at 6" mark and end pivot wire at 1" mark with thread.**
3. **Cover the area below the 1/8" graduations with masking tape.**
4. **Hang fixed beam (1x2 lumber, 6 feet long) from doorway and hang yardstick from beam.**
5. **Glue counterbalance material (lead weights) to zero end of yardstick to balance.**
6. **Using a pair of equal weights, balance the yardstick.**
7. **Adjust and glue the center pivot.**
8. **Using two more weights, each equal to the sum of the first two weights (total six units), balance the yardstick again (five units at 1", one unit at 31").**
9. **Adjust and glue the end pivot.**
10. **Mark the masking tape every tenth graduation, dividing it into 24 units. Each original division on the yardstick now represents 1/10th unit of weight (ounces, grams, etc.).**

For help, contact Bill Bigge, 13020 Well House Court, Germantown, MD 21206, tel: 301/972-1051.

WILLIAM R. BIGGE is a physicist with the National Bureau of Standards, an acknowledged expert on small kites and indoor model aircraft, and the designer of the Janus 40 Zero Wind Glider Kite. Bill said his yardstick balance was inspired by a similar project by Bob Ditmer, reported by Bob Meuser in his May 1983 column in Model Aviation.

Letters

. . . Continued from page 10

fully in the picture in *Kite Lines*. The kite is obviously magnificent and should be made to fly properly and safely.

Not the most cheerful subject, but one which does need some thought if future tragedies are to be prevented.

Robert S. Price
Burtonsville, MD

BIRD BATH

Last year in Ocean City, Maryland, I was flying my Falcon kite on the beach and got carried away. I let out about 500 feet of line and the bird took off on its own! Looked as though it was diving for its lunch and finally ended up in the Atlantic!

I simply wound my string in and walked towards the ocean to find the location. I was using only 8-pound test, so I was concerned about maybe losing the Falcon.

Due to the fabric construction and non-wood spars, the kite had sunk to the bottom, and it was impossible to merely pull the kite by its line. However, by using the wave action, I simply pulled with the incoming waves and hesitated in between. Within a matter of minutes I had my Atlantic-drenched Falcon in hand.

I have flown the Falcon on a couple of occasions since returning home, and it definitely handles differently. The swim in the ocean and subsequent drying caused the cotton to shrink slightly, which gives a more taut skin to the kite. It now responds more quickly to wind and string variations. I guess that is what it takes to get a Falcon to react on its own—a quick swim in the Atlantic!

I might add that, due to the hollow structure of the spars, each time I assemble the kite for flight, I hear some of your Maryland sand rolling inside.

George Weber
Carrollton, TX

You are encouraged to write letters for this column and reply to them through our forwarding services. Any letter to Kite Lines *may be considered for publication (subject to editing), so please state "not for publication" if you want no doubt to be left about it. Write:* Kite Lines, *7106 Campfield Rd., Baltimore, MD 21207, USA.*

CORRECTION

In the Summer-Fall 1983 *Kite Lines*, in the article "Heavyweight Kite Fishing South African Style," the text referring to the drawing said that the length of the bridle leg BE must be exactly equal to BC when it should be equal to the distance of BD. We regret any confusion this typographical error may have caused.

What's New: Kites, Books, Sundries

Kites

By George Fohs, with flight assistants Bill Kocher and Michael Jones

UPDATING THE STUNTERS

Stunt kites continue to grow in popularity since the first major review of two-line control kites appeared in *Kite Lines* (Summer 1977). There are close to two dozen models on the market today, a veritable feast for the dual-line flier.

Basic Principles

Stunt kites are flown with two flying lines, one attached to each side of the front of the kite. When you pull on the right line, the kite turns to the right; pull left and the kite turns left. By a combination of left and right pulls, you can perform countless maneuvers.

For safety's sake, remember that stunt kites require more space than single line kites—more air space *and* ground space. Avoid flying your stunt kite(s) in crowded areas or over the heads of innocent bystanders. Wearing gloves to improve your grip and protect your hands is not a bad idea, either.

The Wind

The nine kites we tested for this review were flown in winds of 12 mph with gusts up to 20 mph. It was a good wind for most of the kites, but not as smooth as we would have liked. (Stunt fliers are always looking for the perfect wind the way surfers look for the perfect wave.)

The Kites

The *Griphon* from Vertical Visuals is a striking delta design with a scalloped trailing edge. Assembly is straightforward, including the fiberglass battens which help the wings maintain their shape. The lightweight materials and large size make the Griphon an excellent choice for light winds. It's a good steady flier—slow, but precise. We found two problems: (1) the spine, which was broken when we received the kite, is a wooden dowel *59 inches long*—we made a new spine using two dowels pieced together; (2) the trailing edge is unfinished and began to fray soon after launch.

Vertical Visual's *Phoenix Variant* is similar to the Griphon, but smaller. It is a good light-wind flier, yet can handle winds over 10 mph easily. Either of these kites would be worth having for those calmer days when other stunters won't fly.

Bill Kocher

Reviewer George Fohs flying stunt kites with the use of the steering harness he made, like one devised by Henry Manseau. George likes to hook up to music (see earplugs) while stunting.

We tried two new delta models from Skynasaur. The *Skyfox* came already set up as a "stack" or train of three, with 40-foot tubular tails. The Skyfox is easy to assemble and is a quick and precise performer. Several observers commented on how much these kites resembled Hyperkites, the established small delta stunters. In the air, they are similar. Close up, however, the Skyfox shows cleaner workmanship and the thought-out engineering for which the Skynasaur line is noted. We found one drawback: the soft plastic nose connectors fit loosely. In a rough landing, our test models came apart.

The *Skysurfer*, made by Skynasaur also, is similar to the Skyfox, but larger, and uses the same fittings. We tested a single model which performed just as well as its smaller counterpart, although a bit slower.

Skynasaur thoughtfully includes an owner registration card in with each stunt kite. As a result, Skynasaur fliers can be among the first to know when a new kite or refinement is on the market. This is a good idea and we think that all stunt kite manufacturers should do the same.

The *Apollo* from Fabric Design was the last of the delta-shaped stunters we tested. The literature claims that the Apollo is a good light-wind flier, but it seemed a bit heavy to us, flying steady, but slow. We did not have a chance to try it in light winds, but it handled the heavy gusts extremely well. To assemble the Apollo, insert the spreader into the metal springs on the wing struts. These fittings move freely on the wing struts, but they caused no difficulties during our test.

Since receiving the Toy of the Year Award in 1976, *Peter Powell* stunt kites have become increasingly popular every year. The original design, with a sail of heavy polyethylene, is now being supplemented by two new models covered with ripstop nylon. The standard size (four-foot) model flew extremely well—just like the original. The long, tubular tail is still dramatic as ever, following the kite's maneuvers precisely. We believe that the nylon Peter Powell is even more durable than the original plastic, and, therefore, worth the extra expense. The Peter Powell, in this flier's opinion, is still the best stunt kite for a novice because it is virtually indestructible.

We tested the new, smaller (three-foot) Peter Powell in a stack of three. They naturally moved slower when in train, but could still perform good, tight turns. Because of their smaller size and heavier weight, it took more wind to keep the kites in the air and flying smoothly. Unfortunately, the distinctive tubular tails of the Peter Powell, so accurate when they trace the kite's path in the sky, turn into an unruly clot when the wind rolls them together across the ground.

The *Action Kite* from Action Kites was judged one of the best engineered stunt kites we have ever seen. Heavy-duty reinforcements at stress points, graphlex spars, machined aluminum connectors and careful stitching are a few of the features of the Action Kite. The most frequent observation was that it's "built like a tank," but it certainly does not fly like one. The Action Kite has an unusual shape (like a giant boomerang) that makes it difficult

to classify. It is nevertheless a great flier and would certainly be a challenge for even the most experienced kiter. We tested the largest of three models available and found it to be an exciting performer. It has a tendency to "sail" or flatten out in lighter winds, but this is part of the thrill of mastering this kite. In stronger winds, the 20-square-foot model is a real stump puller: be prepared.

Finally, the kite we expected the least from turned out to be quite a thriller. The *Fokker DR-1*, from Mackey's Trade Wind Kite Company, is a small flat kite, looking like one of those simple pear-top diamonds you hardly see any more. This modern version has a lightweight ripstop covering, thin fiberglass struts and a Mylar® tail. Also included as standard equipment are Kevlar® flying lines and a single control bar 16 inches long. To our surprise, we found the Fokker super-quick and easily manageable. Fast tight turns and long sweeping curves can be executed with equal ease. Crash the Fokker on its rounded top and it bounces back for more. The short control bar and the limited stretch of the Kevlar make it possible to fly this kite with *just one hand*. Our test model was red with the silk-screened silhouette of a Fokker triplane on it—unnecessary, we thought, and too small to be identified at normal flying distances. Nonetheless, this is one stunt kite that I plan to add to my bag of tricks.

The Chart

The Data Chart includes some new information we think you will find helpful. The Launch column gives you our estimate of the ease or difficulty you might have in getting the kite off the ground. An Excellent rating goes to a kite that is easy to launch *unaided*. A Poor rating is awarded to a kite that forces you to ask for HELP! Any rating in between means you have to prop the kite up in some fashion to get it into the air.

Accessories

All of the stunt kites we know about come equipped with their own dual flying lines and handles; some also come with tails. Among those we tested, the Fokker, the Peter Powells, the Skyfox and the Skysurfer include tails. Tail can be added to any stunter if you like, to slow down the response when you're learning or for appearance or to show bystanders your looping is planned rather than out of control.

The hottest new development in stunt kiting is Kevlar line. Its reduced drag and stretch deliver better performance for the kites and lessen fatigue for the kiter. On the minus side, if you tie knots in Kevlar or continually fly too many loops, it can self-destruct. The Rainbow Kite Company offers the No Knot ™ system of splicing Kevlar. Even with this method, you should cushion the line with a protective sleeve when you attach swivels. The experts admonish you to keep your Kevlar out of the sun when not in use. After I land my kites, I get this feeling of guilt for leaving my line to rot in the sun. On balance, however, once you've experienced flying with Kevlar, you'll never use anything else.

Some common devices for holding your line are: (1) a short piece of wood; (2) yo-yo's or handles; (3) straps that fit around the hands or wrists; and (4) a control bar, up to five or six feet in length.

The short wooden sticks that come as standard equipment with some stunt kites are useful only for holding the flying line during transport from the factory to you. Cheap, thin plastic handles aren't much better. The quality of the accessories, like the kites, varies, and the difference is usually reflected in the price. You pay your money and you take your choice.

Some nice handles from Airtime called *Dual Spools* are definitely worth a look. They are strong, substantial, yet lightweight, and the grip is comfortable for extended flying periods. They come in a variety of colors so you can "color code" your lines—left and right.

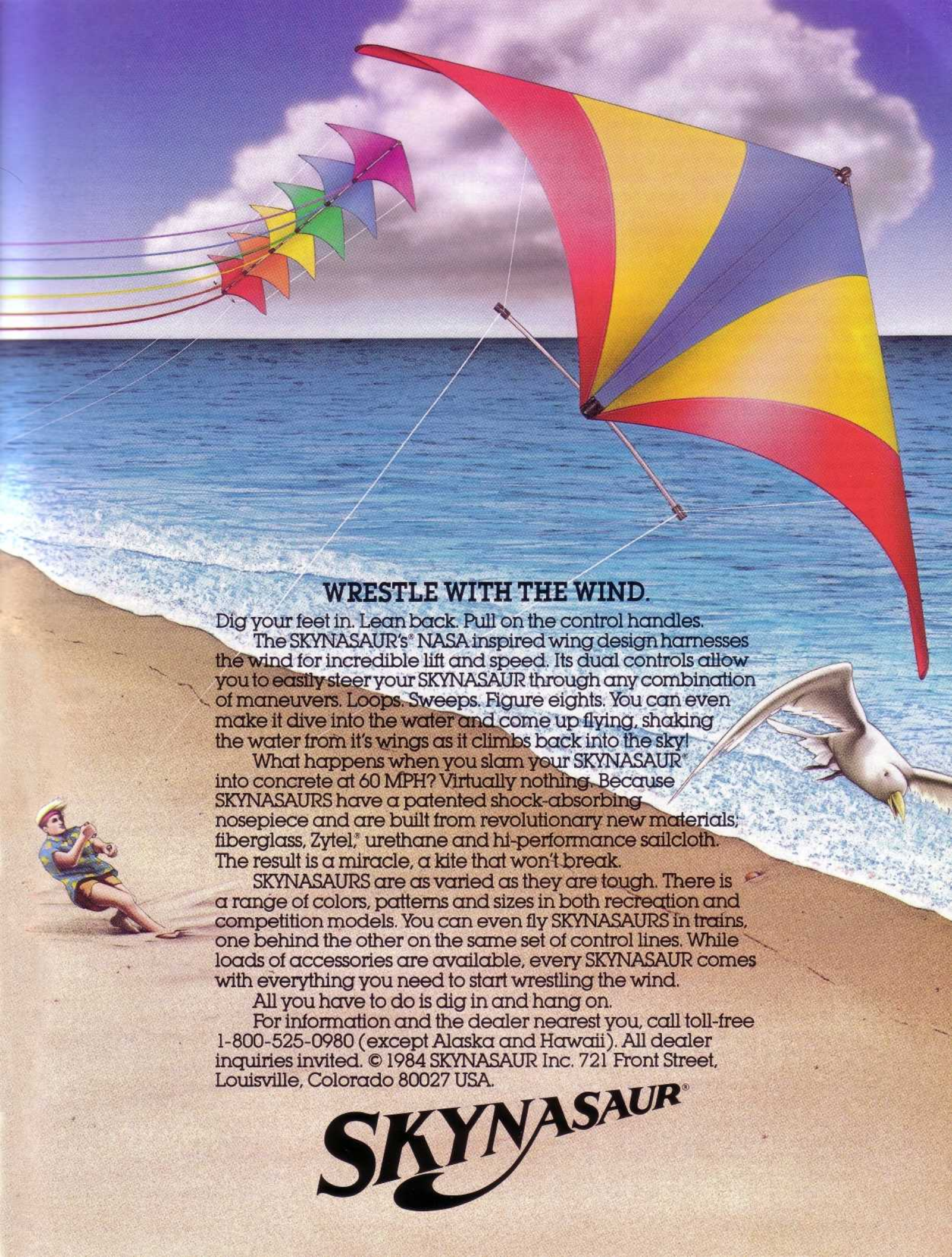
We tested a new pair of straps from Kitty Hawk Kites called *Good Grips*. These are foam-filled nylon tubes formed into large rings that are very comfortable around the wrists for lengthy flying sessions. An added feature is the metal handle option incorporated into the design. When your wrists become tired, you can switch over to the handles for a while; or when your fingers start to go numb, you can return to the strap mode.

Last year, I had some trouble with my

DATA CHART

Name and Shape of Kite	Retail Price ($)	Dimensions (inches)	Weight (ounces)	Major Components	Portability	Assembly Time on the Field	Estimated Durability	Est. Wind Range	Ease of Launch	Skill Level
Action Kite →	130.00	96 x 66	21.0	ripstop, fiberglass, graphlex	VG	5.0 min	E	5-30	G	I-S
← Apollo	33.00	52 x 36	6.1	taffeta, wood	E	1.5 min	VG	8-20	G	N-I-S
Fokker DR-1 →	24.95	29 x 32	1.8	ripstop, fiberglass	G	4.0 min	E	5-20	E	N-I-S
← Griphon	85.00	84 x 59	10.5	ripstop, wood, fiberglass	E	5.0 min	G	4-10	G	I-S
Peter Powell →	24.95	34 x 36	5.2	ripstop, fiberglass	E	1.5 min	E	10-30	G	N-I-S
← Peter Powell	34.95	45 x 48	8.8	ripstop, fiberglass	E	1.5 min	E	10-30	E	N-I-S
Phoenix Variant →	45.00	72 x 36	5.8	ripstop, wood	E	3.5 min	G	5-12	G	I-S
← Skyfox	22.95	27 x 18	1.8	ripstop, fiberglass	E	3.0 min	E	8-30	F	I-S
Skysurfer →	19.95	40 x 26	2.9	ripstop, fiberglass	E	1.0 min	E	8-30	G	I-S

NOTES: The drawings above are provided to indicate the increasing variety in the shapes of stunt kites now on the market. All the kites come with dual flying lines and handles. Retail prices are "advertised" or "suggested." Wind range (in mph) covers minimum and maximum wind speeds deemed suitable by our evaluators. Skill Levels are: N-Novice, I-Intermediate, S-Skilled. Other ratings are: P-Poor, F-Fair, G-Good, VG-Very Good, E-Excellent.



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What's New
. . .Continued

wrists and it was diagnosed as "persistent inflammation of the extensor tendon sheath"—in other words, I had Stunt Flier's Wrist. I was advised that, while not fatal, it wasn't going to go away unless I gave up stunt kiteflying or changed my method of holding on.

Then I met Henry "Hardware Hank" Manseau from Massachusetts at the AKA convention. He was flying a train of 20 Rainbow stunt kites with the help of a contraption which completely relieved his hands and arms of any unwanted pressure. Around his waist was a heavy leather lineman's belt. From this ran a short length of automobile seat belt (including buckle) to the center of a five-foot length of closet pole. At each end of the pole was an eye bolt to which the flying lines were attached. To fly his train, Hank had only to steer the kites, while all the pressure was absorbed by his waist and legs. Needless to say, when I returned home it didn't take me long to construct my own steering harness—and yes, it has solved my problem.

Trends

We had a good time testing these kites and are encouraged by the obvious growth of the sport. If you are shopping for a new stunt kite, you wouldn't go wrong in choosing any of the kites listed here. It is really a matter of what fits your taste and pocketbook/wallet.

It wouldn't be fair to review some stunt kites without taking a look at the others on the market and the current trends that may influence your decision about which kite(s) to buy.

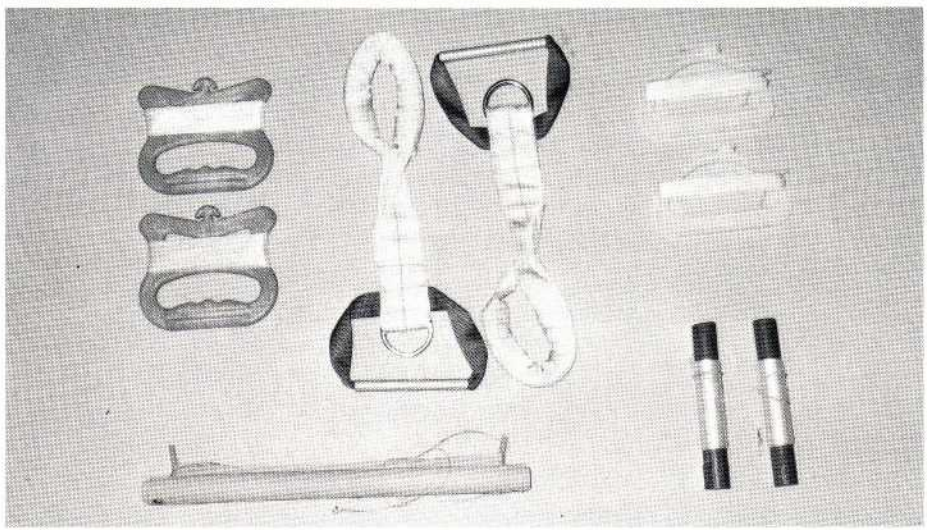
Since the Peter Powell stunt kite started it all, there have been many significant changes in the industry. Several stunt kites have come and gone. The ones that remain in the marketplace are those that combine good design, reliable performance and reasonable price. And you can't disregard good marketing techniques. The Peter Powell kite helped vitalize kiting because it not only combined all of these important features, it created its own market.

The Rainbow stunt kite had just as much impact because it started the big trend—stunt kite *trains*. Other stunt kites had been flown in train before, but it was the Rainbow that led the way in the marketplace. While other stunt kites were sold as singles, the Rainbows were marketed in "packs"—three-packs, six-packs, twelve-packs—as well as single kites. Hyperkites followed the trend, using a smaller, quicker kite. The striped Trlbys were sold as single kites first, then in more colors because enthusiasts like to fly multiples. Peter Powell and Skynasaur apparently now see the advantage in selling stunt trains (more sales per buyer) and for that reason have introduced the down-sized versions of their kites to meet this market.

Other positive trends include the growing variety of stunt kites available, notably some of "unconventional" shape (Action Kite, Fokker, Flexifoil* and Mobius*) and some designed to fly in light winds (Trlby, Griphon and Phoenix Variant). The overall quality of the stunters continues to improve, reflecting well upon the integrity and competition within the industry. This higher quality, in turn, leads to greater durability and longer kite life expectancy as well as flier satisfaction.

There is no reason to suppose that stunt kites are an overnight fad, since they have been in the sky for nearly 10 years. They are a challenging test of skill and fun to fly. But a beautiful *train* of stunters is a magnificent sight for the spectators.

Some stunter handles clockwise from upper left: Dual Spools (reinforced foam); Good Grips; small plastic D-handles (typical); wooden dowels (Action Kites) and wooden control bar (Fokker DR-1).



*These kites are slated for separate review in a future issue of *Kite Lines*.

Books

By Valerie Govig and Leonard M. Conover

SUPER KITES, NOT-SO-SUPER BOOK

Super Kites II, by Neil Thorburn (San Jose, CA: Neil Thorburn, 1983), 112 pages, softbound, indexed, $7.95.

To see the creative kitemaker Neil Thorburn making and flying kites would surely be instructive and a pleasure. He's been perfecting his craft for many years.

Now he has attempted to put his considerable kiting knowledge into a book called *Super Kites II* (successor to his 1975 booklet, *Super Kites*).

The subject matter of the new book is good. There are over a dozen kites, an inventive collection, even if the kites do borrow elements from one another and are sometimes oddly named (including several nonsled "sleds"). A number of construction techniques are worth study. Credit is appropriately given where due. The emphasis is on kites that fly well and use inexpensive materials. The book has four pages with color drawings and some suggestions for surface treatment on page 24 that show real artistry.

The book also includes plans for three "odd boxes," "an ethnic kite" (a Filipino kite and/or Malaysian half-moon kite, the book can't decide). It also contains advice on decoration, materials, tools and accessories and a useful passage on repair of kite sticks, a subject ignored in most kite books. The text ends with five kite poems, a brief bibliography and an index.

A good kite book should be organized to be accessible to the novice but fresh and complete enough to be useful to the veteran. First, the broad principles should be given, then a systematic procession of details, made clear both in language and illustration. To use muddy grammar, commit misspellings and typos regularly,

over-reduce the drawings and photographs to the point of eyestrain, use cramped typography (even though done by hand-lettering throughout) is to put barricades in the path of the reader. They can make it harder to read about kites than to make them. Poor layout and binding compound the problems.

Neil Thorburn has poured his kite expertise into this book. Regrettably, he had no book expertise to pour into it. A kitemaker with only *Super Kites II* for reference could be in trouble. But for the experienced, motivated kiter, there are good kites and tips to be found in the tangled text, frustrating as it is, like coiled monofilament.

Speaking of which, monofilament's many shortcomings are carefully cataloged by Thorburn, but nonetheless he recommends its use. *Super Kites II,* despite its many imperfections, will be in any kite library that is called complete. V.G.

THE WORST IS YET TO COME

Kites and Other Wind Machines, by Andre Thiebault (New York: Sterling Publishing Co., 1982), 96 pages, indexed, softbound, $8.95.

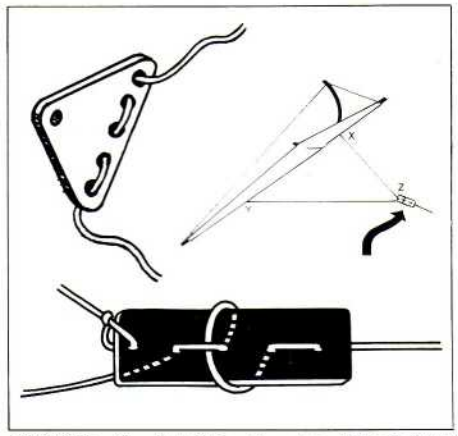
In the fierce competition for the world's worst kite book, *Kites and Other Wind Machines* has an unfair advantage. Originally written in French, the book's translation into English has effectively masked whatever merits may have been present in its native tongue.

For amusement purposes only (or for the masochist in you), you might want to try translating some fractured Franglais phrases, such as: "the fly with the elevated nose," "the pilot with a short pole," and our personal favorite, "kites with pockets have no tails."

The drawings in the book are surprisingly attractive, but woefully lacking in descriptive captions.

Does the book have any redeeming qualities? Strangely, yes. To balance a bamboo spar that is thicker at one end than the other, the book suggests splitting the bamboo, reversing the two halves and "whipping or taping them together." To adjust multi-legged bridles, the book recommends "a small plate made of wood, bamboo or lightweight metal. . .with. . .lined-up holes." Once the bridle lines are threaded through the proper holes, "you simply slide through this gadget whichever bridle is needed to either be lengthened or shortened."

The unfurling cone for use with the paper dispatch is an intriguing bit of whimsy. A sharply pointed paper cone is attached to the flying line at some reasonable altitude, with the point facing the



©1982 Sterling Publishing Co., Inc., KITES AND OTHER WIND MACHINES, by Andre Thiebault, drawings by Bruno Le Sourd.

flier and the flying line passing through it. A streamer-equipped, circular paper dispatch with a hole in the center and a slit along one radius is placed on the flying line and sent skyward by the wind. When the dispatch meets the cone, it is pushed onto the point, then forced open, unfurled and released to float to the ground somewhere downfield. Theoretically, the flier could launch innumerable dispatches without fear of overburdening the flying line with unwanted clutter. By now, you may have figured out that a dispatch is what we in America call a messenger.

It was probably easier to translate this book from French into English than it is for the reader to translate it from Anglo-babble into English. L.M.C.

THE WORST IS HERE

The Kite Building & Kite Flying Handbook, with 42 Kite Plans, by Jack Wiley (Blue Ridge Summit, PA: Tab Books, 1984), 278 pages, indexed, softbound, $15.50.

After consultation, the *Kite Lines* staff names this book as Worst Ever Kite Book (so far). Although there are several contenders, none can compare to *The Kite Building & Kite Flying Handbook* for consistent worthlessness.

"Everything you need to know," cries the book's blurb, "for making 45 [wasn't that 42?] original [a two-sticker?], fully-tested kite designs!" [Tested? Were they even flown? For that matter, were they built? I doubt it.]

In the past we have criticized books researched from previous books rather than from direct experience, but now we eat our words. After all, those books were, at least, researched. Wiley, as near as we can tell, may have read two or three books, old ones, from the library, and maybe an encyclopedia article. He may have made and/or flown one or two kites. The rest of the book appears to be spun out of a feeble imagination. Also it seems heavily borrowed from his previous books. He's the author of two books on fiberglass boats (we pray for those in peril on the sea). There's a little bit of information on fiberglass along with a big section on tools, many of which are not used in kite-making, such as pliers—four pages of them—and soldering—a page on that (yes, soldering). Nowhere is the sewing machine mentioned.

The drawings are painfully poor—in some cases hilariously wretched. Maybe that's why some (one of an Eddy kite) were tilted sideways by the book planner.

The book gives a list of manufacturers —seven old timers. It also lists seven kite stores, of which at least five are out of business. The author's writing style is labored and inarticulate, as in his use of "guideline string" instead of framing string. The proofreader, if there was one, let *kits* pass for *kites* repeatedly. All the kite descriptions end with a section on "variations," in which the author says over and over "You may want to experiment." Wanna bet?

What most shocks us is the flagrant padding that was done probably in the hope of commanding a higher price. But what most saddens us is the disservice such a book does to kiting. And what most disgusts us is the *conscious* adoption of the lowest possible standard that this book represents. V.G.

The burning question remaining in our minds is WHY. Why do authors bother to write such empty books? Why do translators bother to labor over them? Why do publishers bother to print them? For that matter, why do we bother to tell you about kite books that are so deplorable?

To be honest, we have several reasons. We want you to know that any kite book can be a fooler: it may be quite attractive on its surface and may lure unsuspecting kiters into thinking there is substance inside, when there is none.

We hope to show that what is lacking in one book is readily available in another. If Thorburn had produced his book more like Thiebault, he would have had a winner. If Thiebault knew half as much about kites as Thorburn, he would have had a winner. But if Jack Wiley knows anything about kites he managed to keep it a secret from us throughout his entire 278 pages.

And, last, we don't want you to think that all we do here at *Kite Lines* is read all the latest and greatest stuff hot off the press. The three books reviewed in this issue brought us little pleasure and demanded valuable time which could have been put to use elsewhere. We did it for you. ▽

The Shirone

ABOVE THE NAKANOKUCHI RIVER, the first giant kite slowly rises, its shadow floating on the water as it hovers, waiting for its opponent. The kite signals the start of the annual Shirone Giant Kite Battle, a tradition observed for over 250 years in Shirone, Japan. Thousands of spectators are gathered on the river banks now, waiting with excitement and applauding for what happens next. Their cheers are answered immediately. A team from the other side of the river launches an opponent kite, equally large (7.2 x 5.4 meters; 24 x 18 feet) and colorfully painted. Each team has its own design (some dating back 200 years) so everyone knows whose kite is in the air.

Article by Kazuo Tamura
Translation by Dan Kurahashi
Photographs courtesy the Shirone Giant Kite Battle Association

It is east versus west, with 13 teams waging battle across a canal 70 meters (230 feet) wide. Each team fights for personal victory as well, using as many as 18 kites over a five-day period. Before the sun sets on the fifth day, a total of some 200 giants will fly. Incredibly, most of them will also be destroyed, their bones broken and their *washi* coverings swirled away by the river's flow.

Until the end of the 16th century, Shirone and the surrounding area was no place to live or grow crops, for it was damp and marshy, full of lakes and ponds. In the 17th century, the people of the area

Giant Kite Battle

dug a canal to drain the water and built banks along its sides, but the floods continued to plague them.

Then in 1737, the leader of the village of Shirone reported to the lord of Shibata Castle that they had completed repair work on the river bank which had been destroyed the year before. The lord Shibata gave a large kite to the headman as a reward. The leader brought the kite back to Shirone and let the young villagers fly it. By accident, the kite crashed on the other side of the river and destroyed some crops and houses belonging to the village of lord Murakami. The people on the Murakami side of the river became very upset, built a kite of their own and purposely crashed it on the Shirone side.

Thus the kite battle of Shirone started and the people of the area have passed on this tradition from generation to generation. The battle occurs in early June, after the hardest farm work is completed. Now, every June, the 35,000 population of Shirone expands by thousands as visitors from Japan and around the world gather to witness this remarkable event.

Each team starts to make its kites in early May. Quickly the bamboo frame is assembled. Sometimes the builders use unbroken bones saved from year to year. Next the *washi* (handmade Japanese mulberry paper) is pasted on. Then the team's picture is painted by skilled hands. Significantly, these are not professional kitemakers, but ordinary citizens from all kinds of occupations. Shirone's main industry is producing traditional Buddhist altars; around the town there is farming of fruits, rice and tulips. However, for this battle, the people gather together with only one thing in common: kite madness.

In addition to the 13 teams which fly giant kites in the battle, there are 25 children's teams flying their training kites—small versions of the giants—only 12 x 9 feet. To further add to the excitement of the five-day event, there are another 50 teams flying a total of 1,500 *rokkaku* kites, hexagonals measuring 10 x 8 feet.

The Shirone fighting kites are adjusted to fly towards the opponent's side of the river. If, by some misadjustment, a kite should fly away from its opponent, it is very humiliating and shameful to the team. Each team has its own bridling secrets, passed down through generations. All the kites must fly angled into the wind. Shirone is the only place in the world that I know of where kites are flown in quite this way.

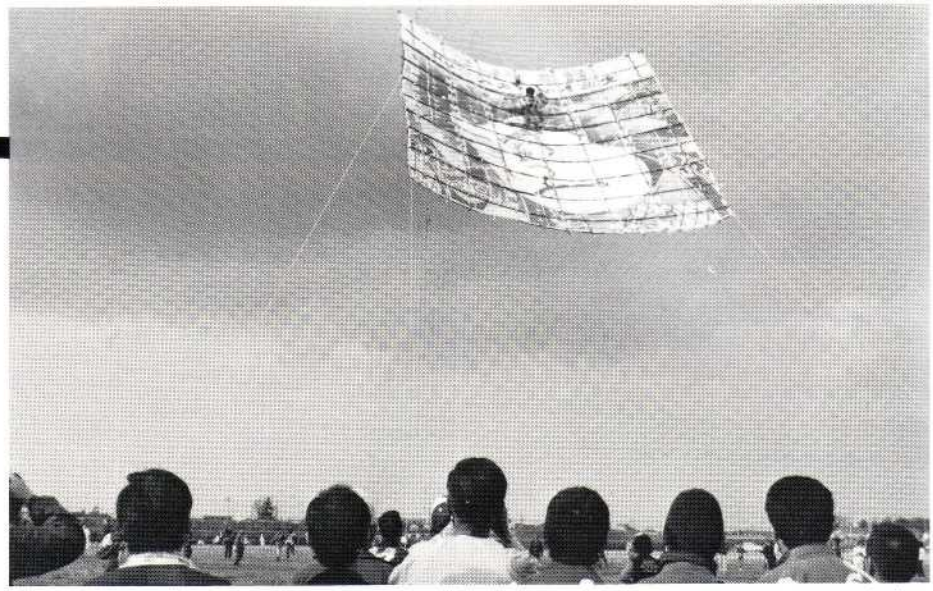
The west kite team, after careful consideration of distance and altitude, causes its kite to dive at the east kite, just as an eagle does against its victim. It is a breathtaking sight. The flying ropes cross. The two giants collide and dive into the river, tumbling downstream. As a result, the ropes become thoroughly tangled, more than tight enough for the tug-of-war which follows.

The flying ropes are pulled from both sides and the kites, now in one bundle, slowly rise up from the river. The glue holding the *washi* together dissolves and what remains of the paper covering the kites now hangs in shreds on the bamboo framework. More pulling follows and the snap of breaking bamboo sounds loudly. It is now the climax for both fliers and spectators.

The crowd rushes to help with the pulling—several hundred on each side—shouting, *Wassyoi! Wassyoi!*, while trying to break the opponent's flying rope. Most of the time, one of the ropes will be cut in about ten minutes, but in 1932 a tug-of-war duration record was established. The fighting started at 2:45 p.m. and continued for about four hours. At sunset, 7:00 p.m., neither side had surrendered nor won. Both the team leaders and the Kite Battle Association agreed the contest should be a draw.

Normally, however, there is a clear winner, which is determined as follows. When team A and team B tangle their kites and flying ropes, they both pull mightily until one team's rope breaks. If team A's rope breaks at a point one meter from its kite, team B is declared the winner by one meter. At the end of the five days, the winningest team is ruled the champion. If two teams win the same number of contests, the length of flying rope that each team acquired is calculated to determine the champion. If a team loses more than 30 meters of its flying rope

Giant kites of Shirone clash, from left top: Ropes tangle in a mid-air Gordian knot while some smaller rokkaku kites fly nearby. Center: Fallen kites dive to destruction in the Nakanokuchi River after colliding overhead. Bottom: The ropes have just broken after a tug-of-war between two kites. The covers are dissolved and the bamboo frameworks are a twisted cat's cradle. Notice some mist has just come out of the snapped rope.



A man-carrying kite is successfully built and flown in 1982 by the Shirone Kite Battle Association.

early in the competition, it can no longer participate in the fighting and is forced to retire from that year's battle. Obviously, each team strives to maintain as strong a flying rope as possible.

The flying rope (not line) used on the giant kites of Shirone is about 30mm (1¼") in diameter. Traditionally, a master rope maker spends an average of 100 days and nights making 120 meters (394 feet) of rope weighing 40 kilograms (66 pounds). The rope is made only from Japanese hemp and the entire process is done by hand. Several Shinto prayer ceremonies are repeated during the rope-making to help insure the strength of the hemp and the pure spirits of the rope maker.

The Shirone Giant Kite Battle is but one of several traditional kite customs which have developed within the isolated culture of Japan. Other events, such as those at Hamamatsu and Nagasaki, will be explored in future issues of *Kite Lines*.

Two Kite Masters of Shirone

The handmade kites of Shirone are valued throughout Japan and even the world.

Toranosuke ("Takosuke") Watanabe practices skills passed down from his father. He is the fifth generation of his family to make one of the best *rokkaku* kites in Japan, the Shirone *maki-ika* (local name for *rokkaku*). Watanabe's powerful warrior-painted kites may be seen in the book *The Art of the Japanese Kite* by Tal Streeter,* where the kitemaker is described as the producer of 5000 kites a year.

Saburo Imai is recognized as the best traditional picture painter in Shirone. He is one of only a few people who can draw all the traditional designs and he makes very fine miniatures of the giant kites. With an almost magical touch, he can draw any size, from 12 by 18 inches to the standard size of 18 by 24 feet—or even larger, such as the Largest Kite effort of 1980 which measured 19 by 14 meters (about 62 by 46 feet).

The Author

Kazuo Tamura is one of the most active kitefliers in Japan and a vital member of the Shirone Giant Kite Battle Association. Only 12 years ago—for the first time in their history—Shirone kites were flown outside their native region under the leadership of Tamura-san. This happened in 1972 in Tokyo. In 1979, Tamura led his crew to Seattle, WA, where they flew a Shirone Giant Kite abroad for the first time. In 1980, he was instrumental in building and flying the world's largest kite at the time—a 19 x 14 meter (62 x 46 foot) giant—and having it listed in the *Guinness Book of Records*. In the Spring of 1982, Tamura's Shirone kite team participated in the International Kite Festival in Scheveningen, The Netherlands. Later the same year, in November, just to prove or disprove one of Japan's greatest kite legends, Tamura's crew flew a 12 x 8 meter (39 x 26 feet) kite with a man on its back. They proved that it was possible, but found that it required much manpower and technical knowledge, thereby leaving some mystery behind. In December of 1982, four members of a Shirone kite team (including Dan Kurahashi) traveled to Phoenix, AZ and flew a giant kite "with the local cowboys."

The Translator

Born in Japan in 1947, Dan Kurahashi started to fly kites when he was 4 or 5 years old. His favorite was the *yakko dako* or footman kite, the most popular one in Tokyo. After his schooling, when he was about 20 years old, Dan started to fly kites again and later became a member of the Japan Kite Association. He immigrated to Canada in 1976 and lives in Vancouver, British Columbia now, where he is active in the British Columbia Kitefliers Association. He also imports Japanese kites under the business name Fujin (1870 Kensington Ave., Burnaby, B.C., Canada V5B 4E1). He welcomes any readers' questions or comments on this article.

Kurahashi Comments

"For the Japanese people, it is very important to fly kites smartly, otherwise it is better not to fly at all. It is our disposition. For that reason, we use dye to color our kites, so the sunlight shines through without darkening or impurities. For the same reason, in Tokyo we fly the *Edo dako* with a long, visible bridle to show our skill. (An *Edo dako* is a rectangular Japanese kite, traditionally decorated with complex paintings of the Edo—or old Tokyo—style.) In Tokyo, a tail on an *Edo dako* would be humiliating, for it would show poor technique.

"It is an amazing scene to watch a master adjust the bridles of an *Edo dako*, a task that may take up to half a day. In the Tokyo area, kitefliers enjoy this process of adjusting and consider it part of the flying (and some showing off). However, in Shirone, they put all 48 bridles on a giant kite in 20 to 30 minutes. I was amazed to see how quickly the giant kites were ready to fly, but such speed is necessary if one is to fly many kites in a limited space and time.

"The kite masters of Japan, such as Toranosuke Watanabe and Sabura Imai, are very important and I hope some young people will follow their crafts and carry forward this part of our culture. Unlike other traditional Japanese arts, kitemaking is not recognized by the Japanese government as *art*. It is a very great shame. Our living culture is dying out. We have to do something now or within the next couple decades we will lose this precious art form forever." ♡

*Illustrations on pp. 26, 37, 38, 39 and 57 (pub. John Weatherhill: New York and Tokyo, 1974).

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Bird Kites: Beauty...in the Wind!, by Shuhei Goto; in Japanese; 36 inspiring color photos of lifelike bird kites plus drawings, including full-size seagull plan inserted; 72 pp. softback, $8.95

Kite Trains Making, by Eiji Ohashi; in Japanese, some English; many innovative trains, detailed drawings, full-size plan; 8 pp. color photos, 56 pp. softback. . .$8.95

Bessatsu Bijutsu Techo, Winter '82, special kite issue of art journal; in Japanese; color photos; 216 pp. softback. $8.95

Create a Kite, by Takeshi Nishibayashi; in Japanese, some English; creative lightweight designs and techniques; 8 pp. color photos; 64 pp. softback. . .$8.95

The Happy Kiteflier, by Takeshi Nishibayashi; in Japanese; cute, easy kites; 16 pp. color; 159 softback, $4.95

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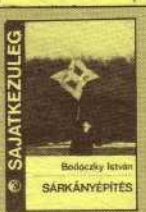
From Taiwan. . . *Chinese Kites,* by Kin Kan and Susan Hsieh; in Chinese and English; many drawings of traditional and novel Chinese kites; 12 pp. of color photos; 84 pp. softback. . .$11.95

From Hungary. . . *Sarkanyepites [Kitemaking],* by Bodoczky Istvan; in Hungarian; many fine drawings (Waldof Box, Flexifoil, Pomorsev); 24 pp. color photos; 207 pp. hardbound. $16.95



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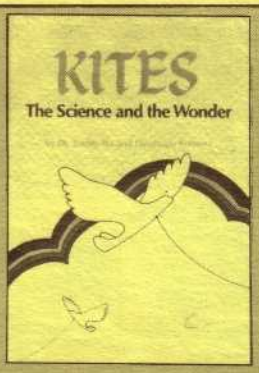
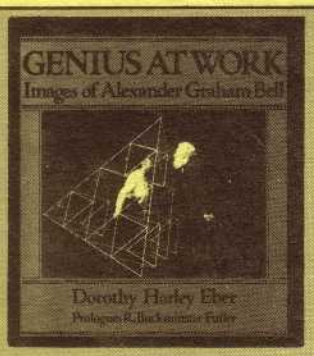




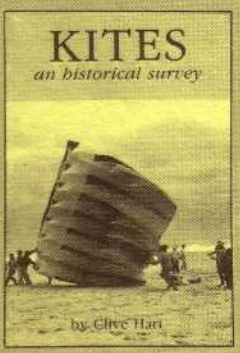
NOTABLE BOOKS

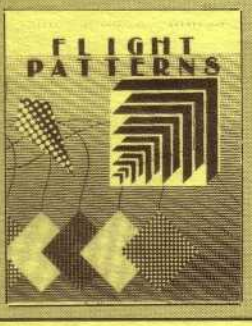
Kites: The Science and the Wonder, by Ito and Komura; despite the frail English translation, this book offers more detail about kite aerodynamics than any other recent book; many diagrams; 160 pp. softback. . .$11.95

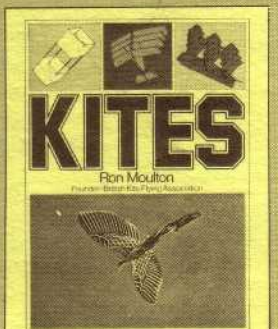
Genius at Work: Images of Alexander Graham Bell, by Dorothy H. Eber; rich recollections of Bell and his kites; 132 photos; 192 pp. hardbound, $16.95

Kites: An Historical Survey, by Clive Hart; revised edition of the definitive kite history; many illustrations; bibliography; 210 pp. softback. . . .$13.95

NEW! *Flight Patterns,* by Leland Toy; reliable little introductory book with 8 good kite plans, tips on fundamentals and nice drawings, an unassuming and appealing 36 pp. softback $5







SCARCE AND OUT-OF-PRINT BOOKS! (These are our specialty.) *World on a String: The Story of Kites,* by Jane Yolen; publisher's last stock of this attractive, carefully written kite history book; complements Hart's history; many illustrations; 144 pp. hardbound, $7.95

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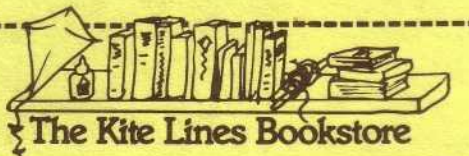

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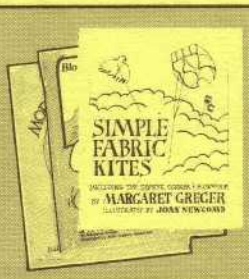

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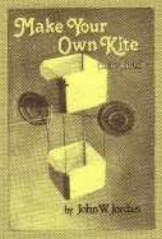
Super Kites II, by Neil Thorburn; many kite drawings; 112 pp. softback, $7.95



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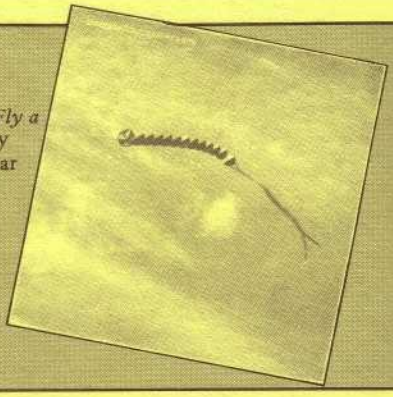

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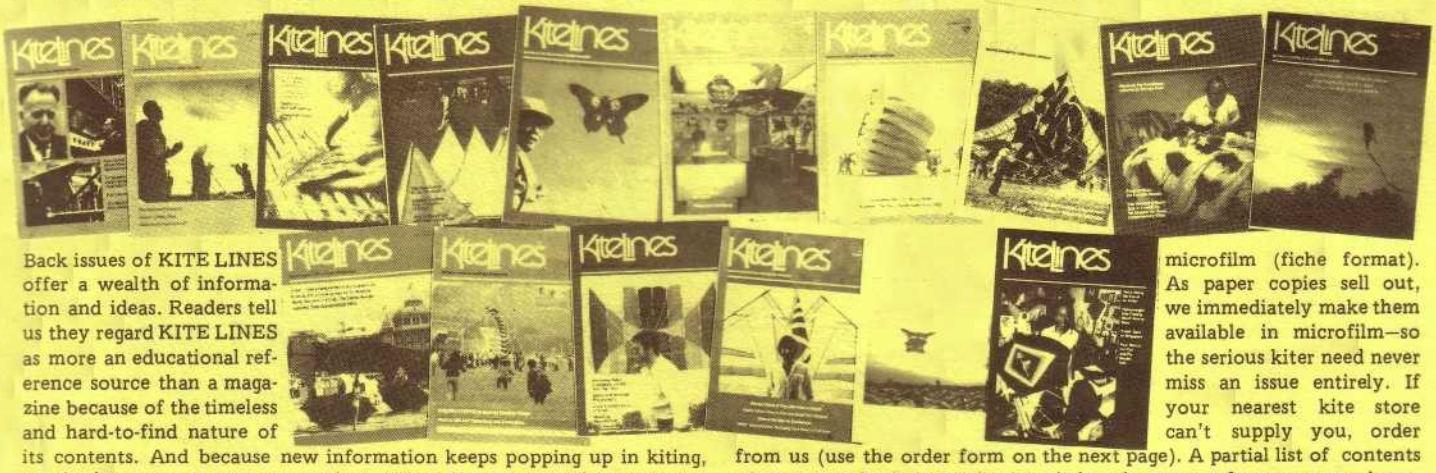

Back issues of KITE LINES offer a wealth of information and ideas. Readers tell us they regard KITE LINES as more an educational reference source than a magazine because of the timeless and hard-to-find nature of its contents. And because new information keeps popping up in kiting, we don't expect to repeat ourselves editorially. Of our 16 back issues, only 5 are still available in original paper copies, but 11 are obtainable in microfilm (fiche format). As paper copies sell out, we immediately make them available in microfilm—so the serious kiter need never miss an issue entirely. If your nearest kite store can't supply you, order from us (use the order form on the next page). A partial list of contents of ALL our back issues is given below for your reference convenience. **BACK ISSUES in microfilm $2.50 each. . .IN PAPER NOW $3.00 EACH**

SPRING 1977 (Vol. 1, No. 1):
Outrigger Kite Plans; Brummitt's Kite Categories; Exhibits: New York, Paris; Profile: Paul Garber; Two Marconi Kite Plans; Glue Gun Use; Festivals of Japan—Streeter; Magazine's History—Ingraham; Tail Talk; Bag Kite.

SUMMER 1977 (Vol. 1, No. 2):
Which Is the Perfect Kite?; Person-Lifting Kites; Trains: Proposed Standards for World Records, Profile: Mike Weletyk, Van Gilder's Train, Tom Van Sant's Trampoline; Pfund on Controllables; Greger's Dutch Kite.

FALL 1977 (Vol. 1, No. 3):
Gull Delta Plans; Tail Selection; Ansel Toney Profile; Guatemalan Kites; Kite Fishing—Oregon, Micronesia; Reels Analyzed; Seattle Exhibit; Sycamore Fire; Greger's Vietnamese Kite; C.P.S.C. vs Aluminized Dragon.

WINTER 1977-78 (Vol. 1, No. 4):
Medieval Dragon—Hart; Thorburn's Stacked Deltas; Tetrahedral Kite Symposium—Comparison Table, Tetra Plans, Tips; England's Jubilee Year; Shipping Kites—Ingraham; Making Sled Kites with Hundreds of Kids.

SPRING-SUMMER 1978 (Vol. 2, No. 1):
Rogallo Corner Kite; Lincoln Chang's Rokkaku; Profile: J. C. Young; Flexifoils; Kite Festivals; Spendlove's Taxonomy of Kites (poster); Cerf-Volant Club de France; Braswell's Figure Kiting; Safety Issues.

SPRING 1979 (Vol. 2, No. 2):
Reels Roundup; Van Gilder's Reel Design; Tokyo and Smithsonian Kite Exhibits; Streeter in Paris; Kites in the Wilderness; Nirvana in Nags Head; Braswell's Two-String Delta; Profile: Stephen Bernstein's Chinese Bird Kite.

SUMMER 1979 (Vol. 2, No. 3):
Flow Form kite plans; Marshalls' new nylon cutting technique; AKA's first meeting and the Grand National Kite Festival in Ocean City, MD; Brummitt—The Sky Is Big Enough for All of Us; letters on altitude record.

FALL 1979 (Vol. 2, No. 4):
Sri Lanka Craftsmanship; Symposium on Monumentality in Kites, Giants of Japan and the Bedsheet O'dako; Louise Crowley profile; Trebilcock's Lighthouse Kite Fishing; Kurle's Super Conyne plans.

WINTER 1979-80 (Vol. 3, No. 1):
Rotors Reviewed; Grauel's Shooting Arrow and Bull's-Eye Target Kites; Ham's Parafoils; Allison's death; Robinson's Facet Kite; Streeter on the Flexifoil; The Miracle of Sagamihara—Poehler; Kill Devil Hills; Manassas.

SPRING-SUMMER 1980 (Vol. 3, No. 2):
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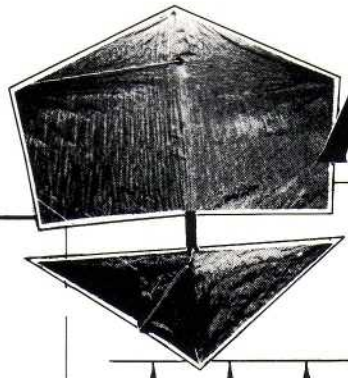
Alick Pearson's Roller



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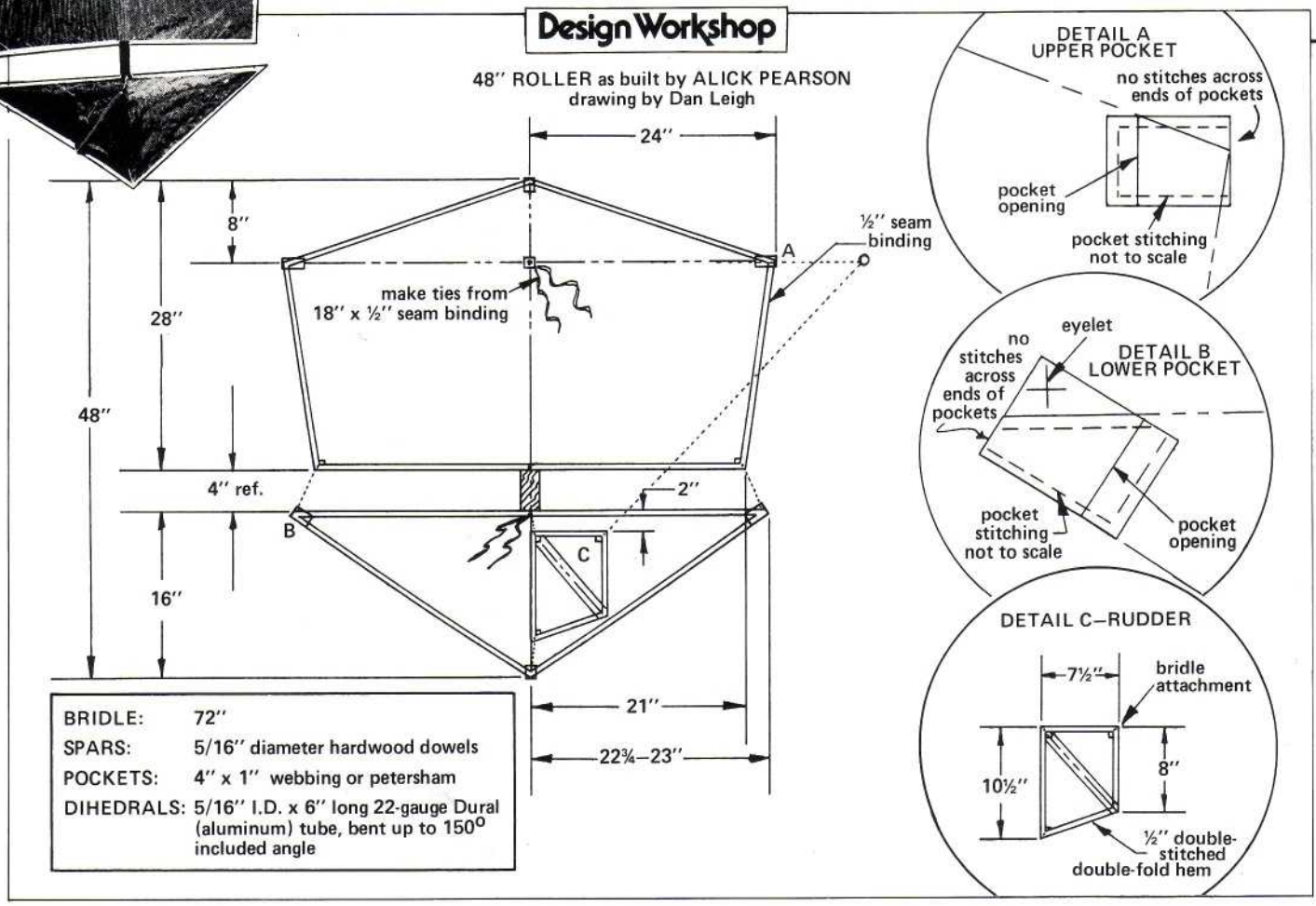


By Dan Leigh

In 1925 Alick Pearson flew his first kite at the Round Pond in Kensington Gardens, London. The site was a favorite for a group which became known affectionately as the Round Pond Fliers.

Alick was a regular at the park. He is acknowledged as the first Round Pond Flier to use nylon flying line and to make a kite of ripstop nylon. He was famous for his bird kites, but also made Rollers, Pilots, Malays, winged boxes and others, as well as reels.

A plainspoken Irishman, Alick attributed the first Rollers, split Malays and bird kites to fellow Round Ponder John Shaw. But of his own variations, Alick liked to proclaim, "You see, I've perfected three particular kites: the plain Roller, the diamond Roller and the bird kite. And as I've said before, I can guarantee them to fly straightaway, without testing. I can drop a bird kite onto the floor and tell if it will fly from the way it flutters down."

One summer day about ten years ago I had taken my first kite to Regents Park in London to fly it. The kite was a string-framed pentagon of crepe paper with a crepe paper tail. It didn't roll up, so just getting it to the park from where I lived was something of a minor achievement.

I was pleased to see my kite flying at 100 feet or so while other people nearby couldn't get their store-bought kites up. Then the wind dropped almost to nothing and I, too, was grounded. A flicker of color to my left caught my eye and I watched as someone slowly, deliberately walked across the field and nonchalantly dropped a bright red kite on the grass. The kite seemed almost as big as the flier and I was a bit puzzled. As he walked upwind a hundred yards or so, I couldn't imagine what was going to happen next, but I didn't have long to wait.

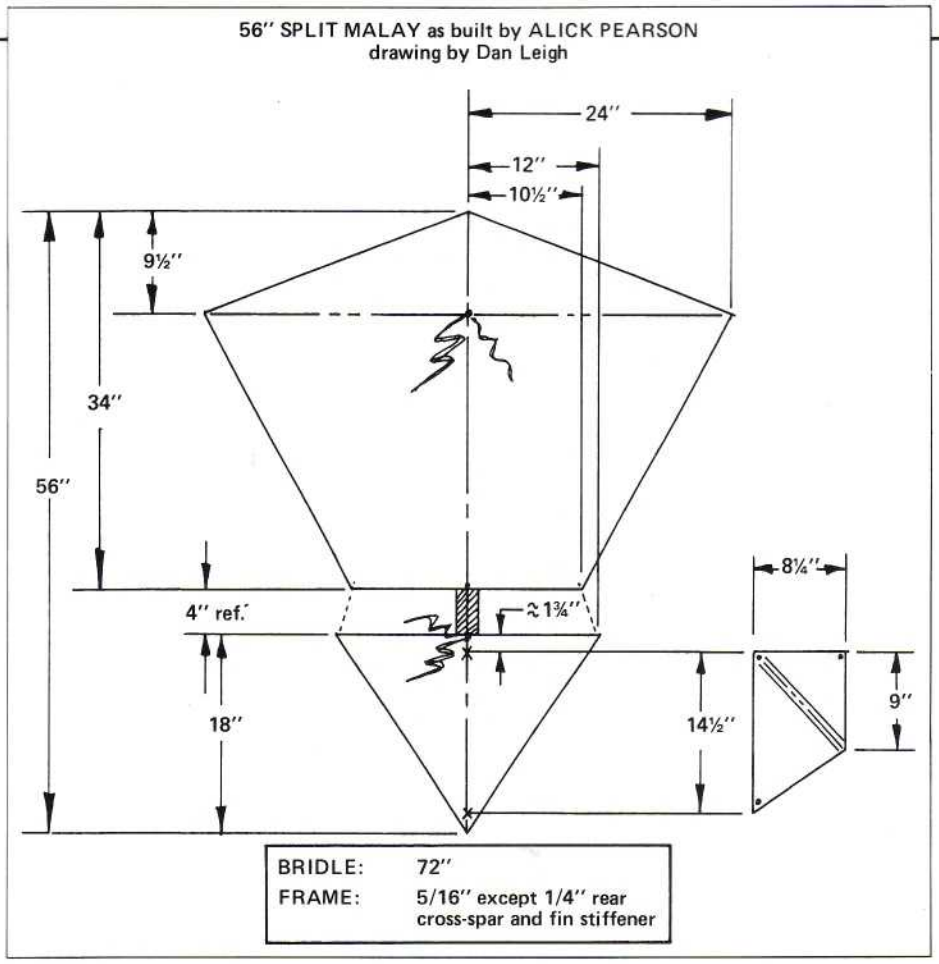
The chap stood on one spot, gave a few quick turns on an enormous reel and that red kite leaped off the ground and climbed straight up into the air. Just as abruptly, it stopped climbing and floated, like a captive feather, slowly downwind. It didn't lose much altitude either: it just drifted further and further away, very gently, and then suddenly it shot up again, but much higher this time. Slowly I came to realize that my puny effort and my crepe paper kite were relics from the dark ages of kiting.

Later I was to witness tiny specks of color 3,500 feet in the air at Kensington Gardens. The kites were called Rollers and split Malays and an old gentleman named Alick Pearson made them.

The name Roller turned out to be an Anglicism for the original name Roloplan. A 71-inch kite made by the German toy manufacturer Steiff during the first quarter of this century, the Roloplan had been copied by British kiters and, at some point, the name was changed.

Until recently, Rollers in London were relatively faithful copies of the original. However, on the other side of the River Thames, at the Round Pond in Kensington Gardens, Alick Pearson had begun the process of simplification which resulted in his ultimate version of the Roller in the early 1970s. His design uses a single loop bridle, has square proportions (4 x 4 ft) and no nose fin. The forward spar crosses the spine one-sixth of the length down from the nose and the rear spar is one-

and the Round Pond Fliers



third of the length up from the tail. The sails of his Roller are stabilized dimensionally by means of a ½-inch seam binding around their periphery. The two sails are joined at the center by a four-inch length of nylon webbing two inches wide and by adjustable strings, one on each side. The net effect is that of a kite with suspended sails, as if there were a framing string all around.

It is important that the mainsail be attached to the spine at the midpoint of the aft edge. Another area to watch is the angle of the strings connecting the fore and aft sails: too acute an angle puts too much tension across the aft edge of the mainsail and not enough up the sides, while too upright an angle lets the aft edge of the mainsail go slack. In addition, Alick sewed the aft spar pockets at an angle and used extra-wide material so he could put eyelets into the protruding corners. A suggestion is to lay out the aft sail as if it were 24 inches wide, then fold or trim the tips to fit the pockets.

The rudder is made with a folded hem all around instead of seam binding. Three corners are reinforced for eyelets. A strip of ripstop is sewn on the rudder diagonally with one end left open, into which a thin batten is inserted and sewn in place.

As on the original Roloplan, the dihedrals are made from aluminum tubing bent into an included angle of 150 degrees.

When making the frame, fit the center spine first, so that it stretches the fabric a bit but doesn't distort it. Then attach the ties to the spine. The two cross spars are responsible for giving the kite its camber, so start with a bit of extra length and carefully trim until they're just right. At first they may seem too tight, but in time the fabric will stretch a bit. With the cross spars in their respective pockets, draw them up to the knot in the ties, bring both ends of the ties over the dihedral, back around the spine and out again, but on opposite sides of the dihedral, and tie them in a bow. Now check that the two sail connecting strings are set so that the gap is the same at both sides as it is in the middle (four inches).

The last of Alick's kites stocked by The Kite Store in London had long been sold when Alick died this spring. *(See page 60.)* If more such kites are to be made, others will have to make them. ♢

I visited the Round Pond group in May and spent most of a Sunday afternoon with them. The men in the group are something to behold. They disclaim all and any attachment to a formal club. They also pretend not even to know each other's last names. Alf and Eddy and 'arry just meet each good day and fly. Mostly they have these elaborate bird kites—literally hundreds of hours having gone into their construction—and the kites just go up and sit there. The flyer then ensconces himself firmly in a deck chair, lights his pipe and lazes away the afternoon. Frenetic flying is frowned upon, and God help the interloper who, in a mistaken attempt at camaraderie, intrudes into the group's air space. It's almost as if one must be born into the clan before one can be accepted.

I will have to admit, though, that with a gentle approach, tempered with a real interest in their kites, and just a touch of humility, my wife and I were able to spend a most delightful afternoon—in spite of the fact that, in a moment of indiscretion, I admitted my current interest in Japanese and Indian fighters. Such peccadilloes could be tolerated in a foreigner, but are certainly not appropriate for the Round Pond.

The lore of the group is extensive and one could spend many hours recording recent and ancient history of the Round Pond Fliers. They even credit the Good Queen Bess with their ground, since, when she lived in Kensington Palace, which abuts their field, she had all the trees cut down so she could see the Round Pond and Kensington Gardens.

"It's almost as if one must be born into the clan..."

The above material was excerpted from a letter to Kite Lines *dated August 21, 1979. The writer is Dr. William L. Bastendorf.*

Jim Fisher

Apple's Piece of Sky

By Bart Ripp, *Albuquerque Journal*

Almost every day at the Isleta Pueblo Indian Reservation, a frail kite can be seen bobbing in the bright blue sky.

The kite has become a tradition among the Isleta people, who stop during their chores to locate the kite, smile and reassure themselves that old Apple is out enjoying himself.

Everyone at Isleta knows Jose Bartolo Trujillo by the appellation Apple, apparently because it is easier to pronounce than his full name. He is 62. He is deaf, was stricken by polio when he was 4, and can't use his legs. Still, he attends dances, where he updates the community on his activities. In broken Tiwa, seemingly understood only by his neighbors and family, Apple excitedly explains that he has been flying his kite a lot lately.

Apple also cuts wood, pulls weeds, waters the young poplars around his family's house, uses a slingshot to harass dogs threatening the trash cans, and draws.

Apple is delighted when his kites break, for that gives him the chance to patch them. He calls his kites by the name "Patchy," for they are reinforced with swatches from black plastic trash bags.

Apple and a long line of Patchies used to live in the village of Isleta and travel by horse-drawn wagon to the site off Isleta Boulevard where he flies his kites. His principal companion was a black rabbit named Walter, who died recently.

For the past 10 years, Apple has taken his kites made of quilted plastic and the slingshot fashioned from inner tubes out into the yard. After testing the wind by tossing a handful of sand, Apple launches his kite. Once the kite with the blue gingham tail is flying high over the reservation, Apple lights a Salem to celebrate another successful flight.

There is a rumor that Apple is a medicine man, for he can fly his kite in a whisper of a breeze. His niece, Betty Lente, denied this gossip, adding that Apple's father, a man named Juan B. Martinez, was one.

"Not Apple," she said. "He's just a nice old man who loves flying his kite."

Apple also loves crashing his kite. When the wind dies, the kite plummets into the sand, sending Apple into a seige of giggles. When even he can't get the kite airborne, he often sends for 9-year-old Justin Lente, Betty's son, for some help.

When Justin is in school and the wind just won't blow, Apple watches the crows and sparrows that vie with his kite for air space. Often, he sits and smokes and observes the haze shrouding Albuquerque, 14 miles to the north. When the wind dies down, Apple waits for the yellow school bus, bringing Justin and other children who will help get the kite airborne.

This being New Mexico, the wind soon will begin to blow and Apple will have his kite aloft again.

Cars and trucks often honk as they whiz by on U.S. Highway 85. Apple waves to their drivers, then resumes watching his kite. Sometimes he motions for the drivers to come and visit, but they are down the road by then, with Apple's kite visible only in their rear-view mirrors. ♢

By Bruce Pfund

I'm a very lucky kiteflier. I live in Rhode Island right next to the Atlantic Ocean and consistent high winds. During the last 12 years my interest has focused on high-wind flying.

First I needed kites that could withstand the stresses of flying and crashing in winds over 60 mph. I spent hundreds of hours building kites and increasing their maneuverability and durability.

I first discovered the flying lines' effect on kite performance on a blustery February day in 1976. Flying a maneuverable kite in high winds is exhausting, and I was holding the kite in the overhead stall position to give my arms a rest. Suddenly a strong gust arrived and, although the line tension increased, the kite moved closer to the ground. I deduced that this was caused by something other than the kite and that the only other culprit was the lines.

After I had made careful observations while flying and reviewed some movie footage, I determined that when the gust arrived, the curvature of the lines increased and the kite was pulled closer to the ground. Apparently the effect of the gust was greater on the lines than on the kite, which came as a bit of a surprise to me.

When I started serious kitemaking, I purchased a 1000-yard spool of braided squidding line from a local manufacturer, Ashaway Line & Twine Co. In March of 1976 I made another trip to the factory, and that was the start of an enjoyable friendship with the owners of Ashaway, Pamela and Steve Crandall, and their coatings chemist, Peter Burns. Over the years, Ashaway has educated me in the inticacies of braided line manufacturing, in addition to providing me with high-tech samples for testing. Many of the observations in this article are the direct result of their help and interest in my maneuverable kites.

KITEFLYING OR LINEFLYING?

Most kitefliers ignore their line until it breaks, at which point they replace it with whatever falls to hand. Actually, a good deal of what is thought of as kiteflying is really lineflying, and a bit of attention to the line can cause dramatic performance increases.

Although this article will deal mainly with two-line maneuverable kites, many of the principles are also relevant to single-line kites.

To start with, I record the line data and date of first launch for each of my kites. A small note under a strip of transparent plastic tape on the winder works quite well. I also keep a simple record of the basic dimensions for every kite that I fly. Here's an example.

A two-line maneuverable kite of three square feet area is flown from two 100-foot braided Dacron®(polyester) lines, each of 35 pounds breaking strength and 0.032 inches in diameter. What is the ratio of kite area to line area?

Area of cylinder = π x diameter x height
Area of kite line = π x diameter x length
= 3.1416 x 0.032" x 1200"
= 120.64 sq. in.
= 0.84 sq. ft.
Area of dual lines= 1.68 sq. ft.

Thus, in this example, the total surface area of the flying lines is slightly over one-half the area of the kite. Although all of the lines' surface is not effective area, it is apparent that the lines contribute a great deal to kite behavior. Before determining how line selection can be used to increase kite performance, an examination of the methods and materials of line construction is in order.

STRING VS LINE

Most "kite string" sold as such is hardly more than scaled-up dental floss and should never be used on anything but the cheapest throwaway kite. Twisted filament string should never be used on a maneuverable kite. It simply is not up to the rigors of being wound and unwound repeatedly. Nothing other than braided line should be used on a maneuverable kite.

The breaking strength (sometimes given as "pounds test") is always shown on good quality line. Never buy unmarked line; its strength cannot be determined visually. Occasionally, the spool will show the braiding pattern as a pair of numbers, such as 12x5, meaning that 5 bundles of 12 strands are used in braiding the line.

Line can be braided from a variety of substances. The Chinese flew their kites from pure silk lines. Other organic fibers, such as cotton and hemp, have been in use for centuries, but the greatest improvements have been in the last 40 years, the result of manmade fibers.

For the past 25 years the predominant materials for fishing line have been the synthetics polyester and nylon. Both are excellent compromise materials, being strong, inexpensive and abrasion-resistant.

The development of Kevlar® aramid is the best thing to happen for kitefliers in a very long time. Kevlar is produced by DuPont and is, by weight, five times stronger than steel. The only shortcomings with Kevlar are that it has limited abrasion resistance and, when knotted, it can actually cut through itself. In addition, Kevlar has limited resistance to damage from ultraviolet light and should not be exposed to sunlight unnecessarily.

During the past four years, Peter Burns at Ashaway Line & Twine has provided me with a variety of Kevlar lines for testing. Some were impregnated with silicones and others were encased in vinyl films. To date the best line that I've used is actually a hybrid. Kevlar and nylon are braided together, then the line is drawn through a heated die that melts the nylon around the Kevlar, forming a line with a smooth finish and excellent abrasion resistance.

KEVLAR DATA CHART

Strength (pounds)	Diameter (inches)	Weight (ounces per 100 feet)
50	0.020	0.192
100	0.030	0.384
200	0.040	0.768
300	0.045	1.008

This information was compiled from a number of sources and may not represent specific line from any single manufacturer. It is intended for comparison purposes only.

KITE LINE PARAMETERS

Kite line has three critical characteristics: strength, weight and drag. Each contributes in its own way to kite behavior and each can be optimized for maximum performance.

1. Strength

Tensile strength is nothing more than the average breaking strength of a given line;

a variation of 6-8% is not uncommon when testing for tensile strength. If you know how hard your kite pulls, always allow at least a 20% safety margin in tensile strength. The new Kevlar lines are so small in diameter that a 100% safety margin is possible while flying with a line that is actually smaller in diameter than a conventional line of marginal strength.

When line failures occur, one should withold judgment that inadequate tensile strength is the cause. Often the failures are the result of knots or local abrasion.

2. Weight

Kite line weight is a critical factor when flying in light winds or at high altitudes. However, because maneuverable kites require two lines, the weight penalty is doubled. The performance of most kites can be improved by switching to the lightest lines of adequate strength.

The ratio of kite altitude to distance downwind (angle of flight) depends on the lift of the kite in relation to the weight and drag of the kite and lines. The kite's lift must offset the weight of the kite and lines plus the drag of the lines.

The weight of the lines is constant but the drag of the lines is constantly changing as the kite is maneuvered. When you fly a kite horizontally, you will need to exert a small amount of UP control to offset the line weight. In a climb-and-dive maneuver, the weight of the lines will be added to the drag while traveling up, but the line weight will be subtracted during downward flight. In addition, in a climb-and-dive, the momentum of the lines will keep them moving forward for an instant after the kite has begun to turn around.

3. Drag

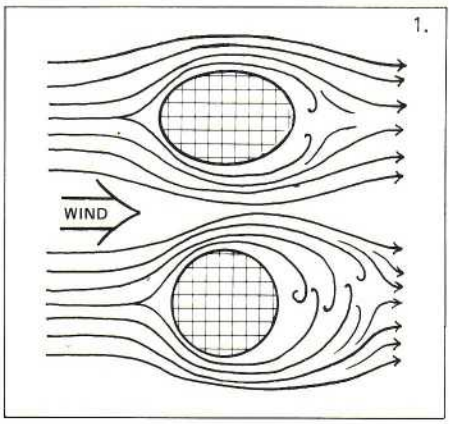
In the struggle between the line and the wind, two kinds of drag come into play: parasitic and cross-sectional.

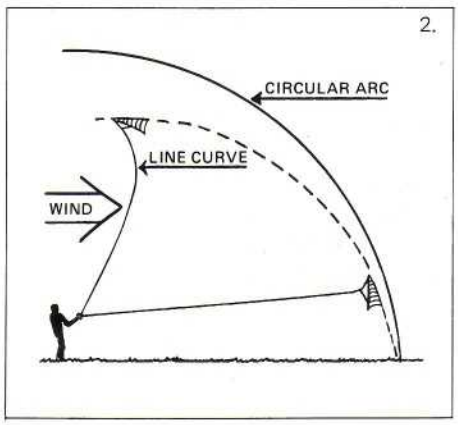
Parasitic drag results from the wind blowing over the imperfections on the surface of the line. Tightly woven lines will have lower parasitic drag than lines with coarser finishes. A 3x10 line would have a rougher surface than a 6x5 line of comparable strength.

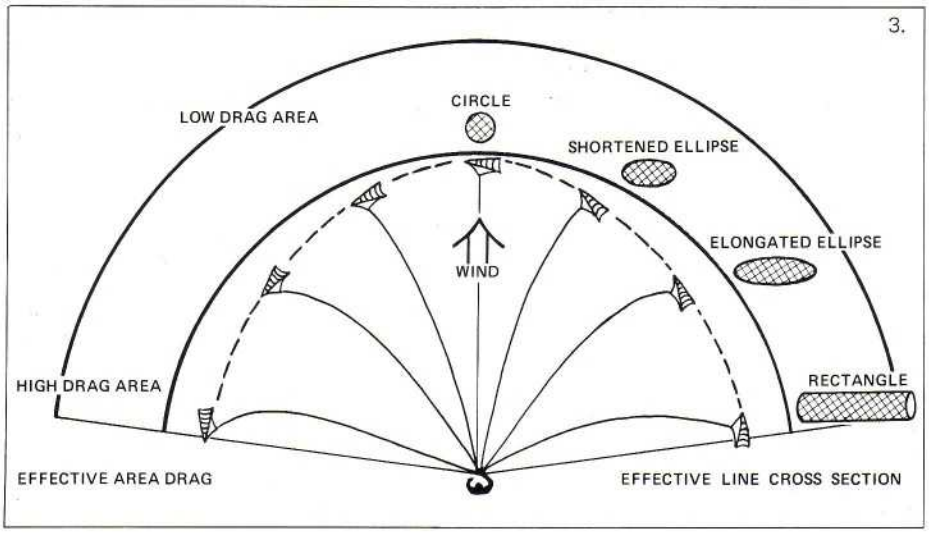
Although nylon monofilament is nearly ideal in surface finish, it is not really suitable for flying maneuverable kites. The elasticity of monofilament reduces control and the nylon's memory (tendency to return to original shape) makes for a rat's nest of coils on the ground when line tension is relaxed after a landing.

Cross-sectional drag is complicated by the dynamics of two-line maneuverables: line drag increases with the square of the wind velocity. If the air speed doubles, drag quadruples. In theory, the drag of the lines will also increase with the square root of the lines' cross-sectional area: if the section quadruples, drag doubles. Reducing the diameter of the lines will always reduce drag, but the relationship of area to drag is not as simple as with velocity to drag.

Illustration 1: Airflow around a cylinder and an ellipse. Illustration 2: As the kite gains altitude, increased drag on the lines causes the kite's flight path to deviate from a true arc of a circle. Illustration 3: As the kite travels left or right of center, the effective area of the lines increases. As the kite approaches the stall limit, the profile of the lines assumes a high-drag rectangular shape.



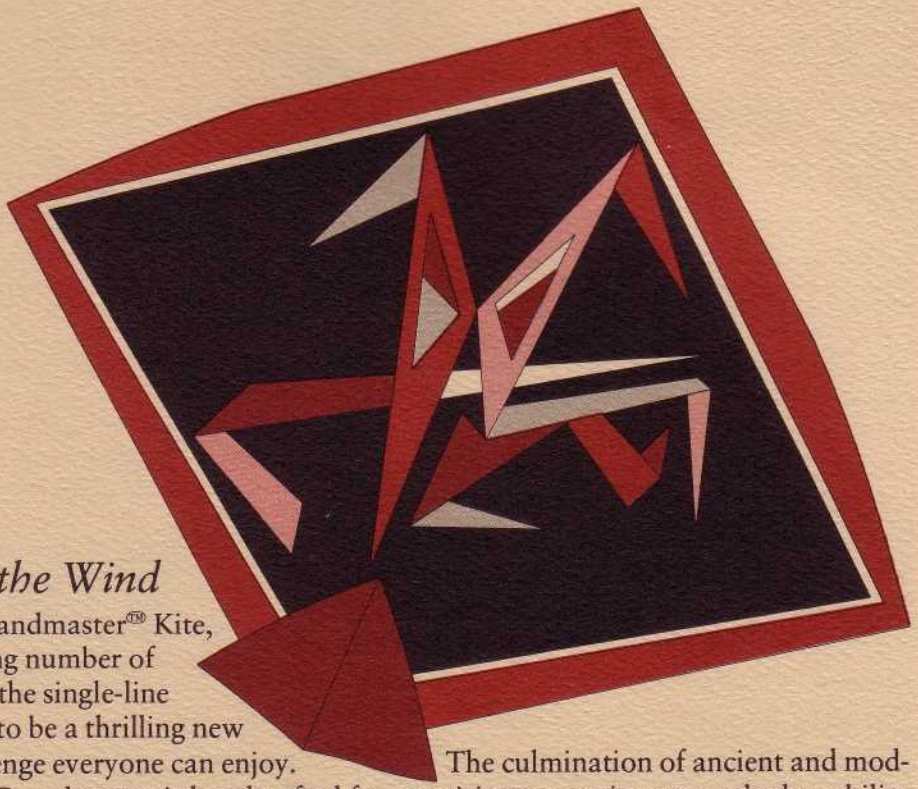




LINE CURVE AND WIND SPEED

Every kiteflier is familiar with the curvature that appears in the flying line(s) *(Illustration 2)*. Note that close to the ground the lines are relatively straight, but that the curvature increases as the line approaches the kite. With constant diameter lines of consistent weight, if the wind velocity were constant, the curvature would take the form of a smooth arc. Why then is the actual shape of the lines not a smooth arc? Because the wind velocity is not constant along the length of the lines. In the lower atmosphere (below 2000 feet), the wind is influenced by local disturbances. Over water, wind velocities 50 feet above the surface are estimated at 80-85% of the velocity at 1000 feet. Over land, the velocity at 50 feet drops to only 40% of the velocity

GRANDMASTER™ KITES



Talking with the Wind

Welcome to the Grandmaster™ Kite, and to the increasing number of kite fliers who find the single-line maneuverable kite to be a thrilling new experience, a challenge everyone can enjoy. The culmination of ancient and modern kite lore, your Grandmaster is handcrafted for exquisite responsiveness and adaptability to most wind conditions. Even without the whisper of a breeze, the Grandmaster™ Kite in the hands of a skilled flier bewilders onlookers by casually dancing its way to greater heights. But as a novice, your first goal is to keep the kite aloft, gradually learning to use hands and fingers to manipulate the subtle pulse of the kite line so that the kite performs to your will and artistry. Soon, you too will learn to "talk with the wind." Like any new language it requires patience and determination, but the rewards of mastering this skill can never be taken away.

The Design of the Grandmaster™ Kite

The Grandmaster™ Kite has improved the aerodynamics of the single-line maneuverable kite, originally developed in ancient China and India. Close examination of your Grandmaster will reveal unusual kite-making innovations accomplished with the use of modern materials, Mylar™ and acetate, the fiberglass bow, and the stiff, handcarved, curved bamboo spine. The resulting accuracy, power, and durability has never before been achieved in single-line maneuverable kites.

The Grandmaster's high-speed response is induced by the unstable characteristic inherent in the kite's simple form. Tension on the line shapes the kite into a dihedral angle as air pressure forces the bow back like the wings of a bird (FIGURE 1). The kite becomes conditionally stable and will move in the direction it is pointed (FIGURE 2). Releasing the tension on the line causes the fiberglass bow to relax, springing forward as the kite surface spills the air and flattens to its original form (FIGURE 3). The kite, now unstable, turns into a spin (FIGURE 4). Reapplying tension stops the kite's spinning action and makes the kite travel a straight course in the direction pointed (FIGURE 5).

The Grandmaster™ Kite is produced in two models to cover all wind conditions. The *Fast* and the *Competition* models are the same in size and appearance; only the diameter of the bow differs. The *Fast* Kite's narrow bow makes it lighter and more flexible, good for learning, and flying without wind or in light to moderate winds. The stiffness of the *Competition* Kite's thicker bow creates greater maneuverability in steady to strong winds (8-20 miles an hour).

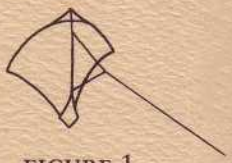


FIGURE 1

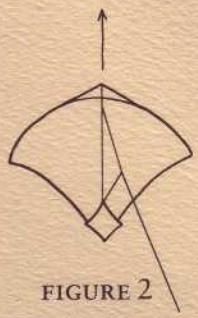


FIGURE 2

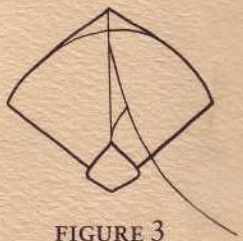


FIGURE 3

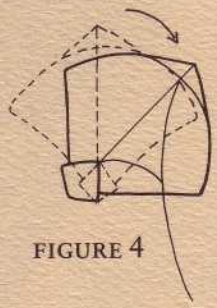


FIGURE 4

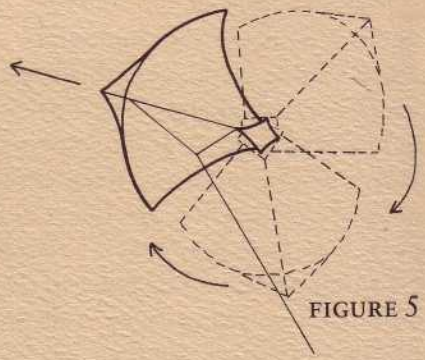


FIGURE 5

Setting the Bridle on the Grandmaster™ Kite

Your Grandmaster™ Kite's bridle is attached and set at its optimum point. However, after many hours of flying your bridle line may wear and need to be replaced. Before removing, examine the worn bridle to see how it is secured to the kite, then remove and attach a 48 inch long, 19 lb. test line (preferably your waxed linen kite line) securely to the front of the kite in the same way. Do not use a line which is too heavy or too light. Heavy line will act as a drag on the kite and light-weight line will break easily. After attaching, hold the line together at A (FIGURE 6), and extend the other hand along the lines, pulling slightly, to B. Let go of A, holding on to B. Tie a knot at B, making a loop for attaching the kite line (FIGURE 7).

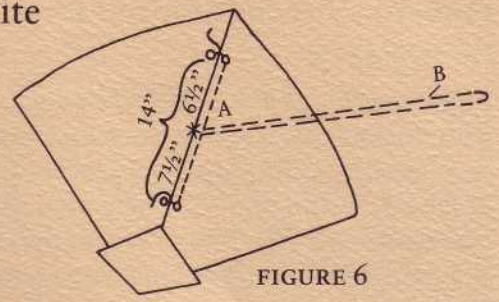


FIGURE 6

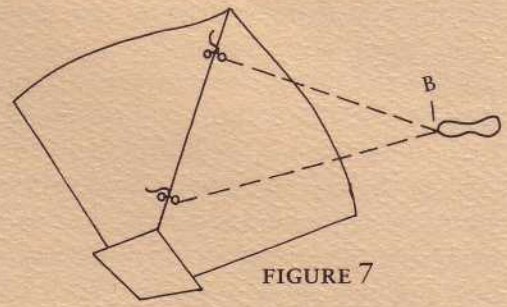


FIGURE 7

Tying the Kite Line to the Bridle

The kite line can be attached securely to the bridle and be easily untied by holding the loop at C (FIGURE 8) and pulling tight at D, leaving a few inches of line at the end, E. This end is pulled to untie the line (FIGURE 9).

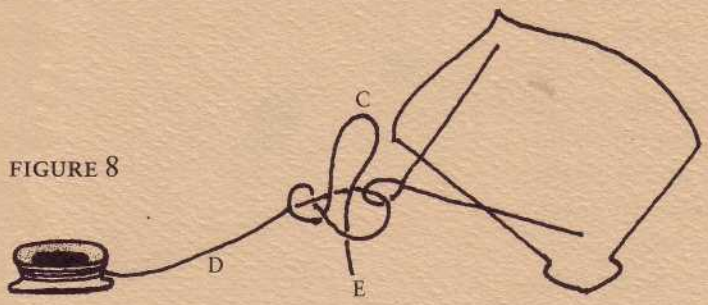


FIGURE 8

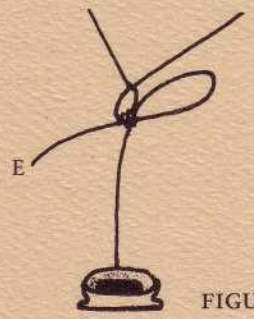


FIGURE 9

How to Launch the Grandmaster™ Kite

For Beginners

About ten feet of 1½ inch crepe paper is enclosed with the kite. Attached to the red acetate tail with clear tape, this additional tail will slow the action of the kite during the learning period. As you gain experience, cut off a foot or two of the crepe paper at a time, until it can be eliminated entirely.

For the first flying endeavor, you should have a wide, open area (preferably grass covered), a steady 4 to 6 mile an hour breeze (strong enough to rustle tree leaves) and an assistant. Stand with your back to the wind, with 20 feet or so of line beside you on the ground, spun off of your reel. Have your assistant stand about 50 feet away, lightly balancing the kite at its outside corners with the nose pointing up (FIGURE 10). With a strong upward pull on the kite line, start the kite up and into the wind. Maintain a tension on the kite line to keep the kite stable and climbing (FIGURE 11). Allow the kite to ascend to a height of 50 feet or more, where you can practice maneuvering freely without smashing the kite into the ground.

With Experience

You will be able to launch the kite without a tail, later without an assistant, and, eventually, with little or no wind. To launch solo, grasp the nose of the kite with one hand and hold the line in the other (FIGURE 12). Release the kite, let the wind carry it for a short distance, then pull up for height (FIGURE 13). Repeat this several times to reach your desired elevation. Avoid slack—excessively loose line leads to bad flying habits. Launching alone will take practice until your reaction time develops.

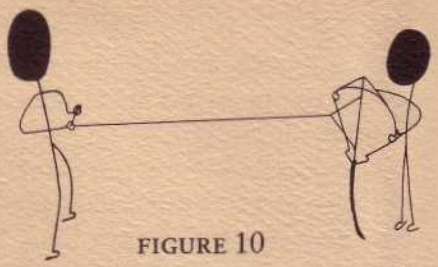


FIGURE 10

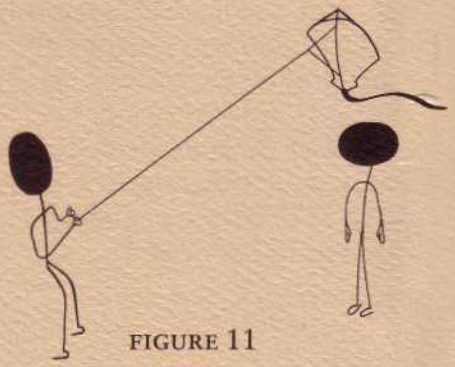


FIGURE 11

FIGURE 12

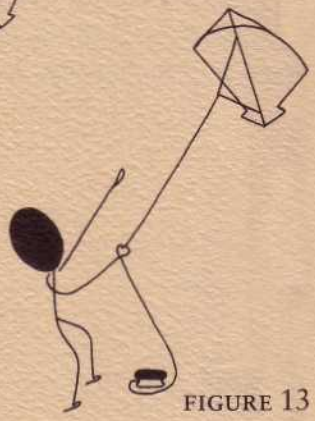


FIGURE 13

Maneuvering the Grandmaster™ Kite

When flying, stand with knees slightly bent, elbows close to the sides with hands in front of the chest. Use both hands to hold the kite line (FIGURE 14). A quick loosening of the tension on the kite line will allow the kite to become unstable, changing its direction of flight. When the kite is pointed in a desired direction, put tension on the kite line. The kite will stabilize and move in that direction. Practice left, right, and diving. Do not fly low. Your reaction time will not yet be swift enough to prevent the kite from hitting the ground. Quick, intricate maneuvering is developed through good line tension and sharp signals.

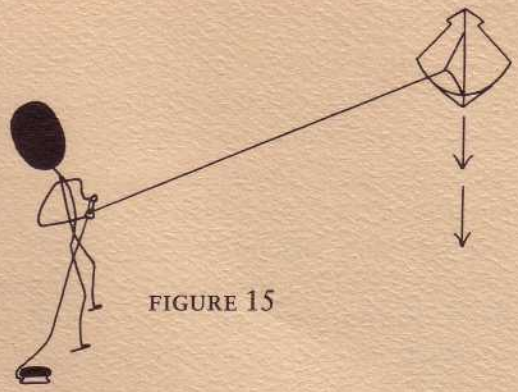


FIGURE 15

If you think the kite is going to nose dive into the ground (FIGURE 15), **let out some line** (FIGURE 16). Don't panic and pull on the line; that will make the kite hit harder. A hard smash could break the spine of the kite or damage the nose section. Remember, unlike a stable kite, if the maneuverable kite dives toward the ground, pulling on the line won't make it go up again—but will make the kite zoom groundward even faster. After loosening the line, tighten when the kite points up (FIGURE 17).

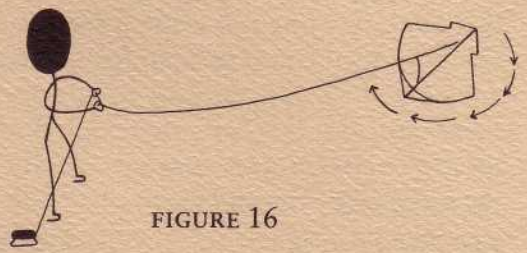


FIGURE 16

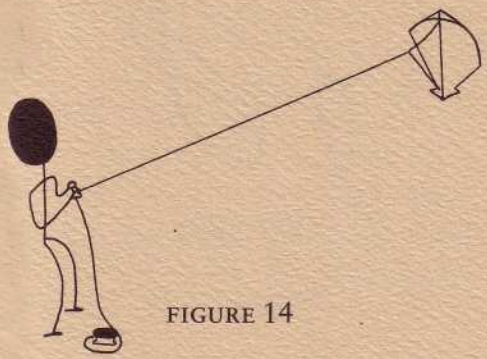


FIGURE 14

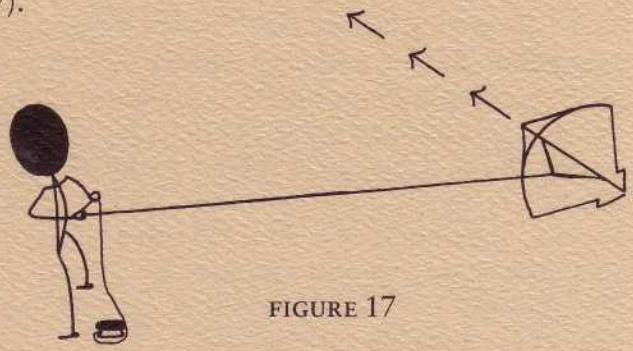


FIGURE 17

Accessories

LINE: Use a high quality cotton line, breaking point 19 lbs., preferably wax coated. For best results, use the Grandmaster waxed linen line.

REEL: We advise the use of a spin-off reel for easy line accessibility. To attach the line to the reel, tie the line once around and tape down the knot (FIGURE 18). Hold wider end of reel with the left hand (if you are right handed) and wrap line snugly around reel clockwise (FIGURE 19). When flying, leave the reel flat side down on the ground so the line can spill off freely (FIGURE 20).

FIGURE 18

FIGURE 19

FIGURE 20

After flying, the line can be rewound onto the reel without tangles by following a simple procedure. Having untied your kite and starting with the kite end of the line, pass the ground line through both hands (FIGURE 21). Continue until all the line on the ground is rearranged with the section closest to the reel on top. Rewind the line carefully.

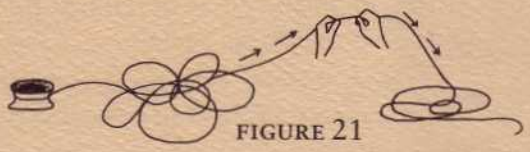


FIGURE 21

KITE BOX: convenient for carrying kites and accessories, including clear tape and band-aids® to protect your fingers from the friction of the kite line.

TAIL: The *Competition* Grandmaster™ Kite without a tail is highly maneuverable in 5 to 20 mile an hour winds. But for a different, slower motion experience in winds above 8 miles an hour, try taping a narrow (maximum 2 inches) 45 foot tail, made of crepe paper or light-weight ribbon, to the red acetate tail section of the *Competition* Kite. If crepe paper is used, the first 8 inches of the attaching end should be reinforced with a strip of clear tape. The long, flowing tail will gently follow the winding kite in beautiful configurations (FIGURE 22).

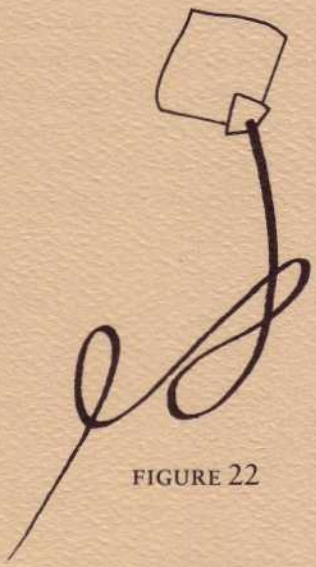


FIGURE 22

Fine Tuning the Grandmaster™ Kite

Like a musical instrument, your Grandmaster may require fine tuning. If the kite turns in one direction only, move the top bridle connection knot in the other direction, Thus, if your kite tends to the right, move the knot toward the left (FIGURE 23), or if the kite tends to the left, move the knot toward the right (FIGURE 24). Test-fly the kite as you move the knot in stages. True counterbalance can be achieved by the slightest change in the knot's position. When you find the best position secure it with clear tape without covering the knot (FIGURE 25). If this does not correct the kite's directional tendency, follow the same procedure with the bottom bridle connection knot (FIGURE 26).

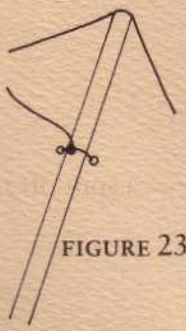


FIGURE 23

FIGURE 24

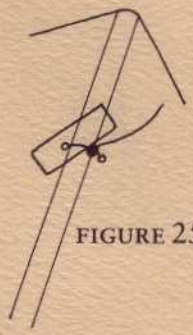


FIGURE 25

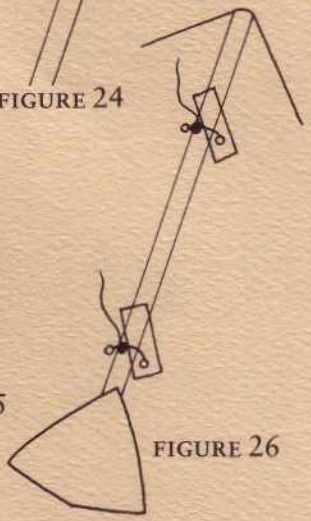


FIGURE 26

Proper Care of the Grandmaster™ Kite

Do not expose the kite to extreme heat.

Do not alter the curvature of the bamboo spine.

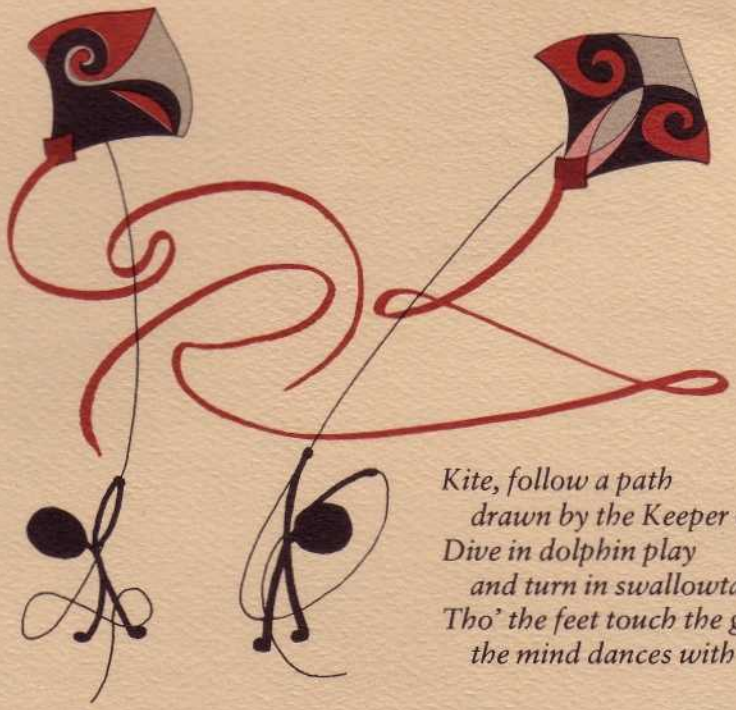
Use good judgement when flying your kite. Avoid power lines and antennas and never fly in the rain.

Always carry clear tape and immediately repair any slight tear of the Mylar™. Hard flying of the kite will eventually cause a fraying of the trailing edges, which should similarly be repaired immediately. Your Grandmaster can be flown over 100 hours with little or no need of repair.

Your Grandmaster™ Kite has been hand painted with the finest acrylics. However, due to the flutter of the trailing edges, the acrylic paint will chip off in a random pattern along them.

If very young children are allowed to fly the Grandmaster™ Kite they should be supervised by an adult. For heavy wind flying wrap the string-holding section of the child's index finger with masking tape or band-aid®. Never use unwaxed cotton or nylon line. Use the waxed linen line recommended for the Grandmaster™ Kite.

The Grandmaster™ Kite is being produced by master kite artisans at the Tianjin Kite Factory in the People's Republic of China. On the tail section of each kite are the signatures of the Kite Maker and Kite Painter.

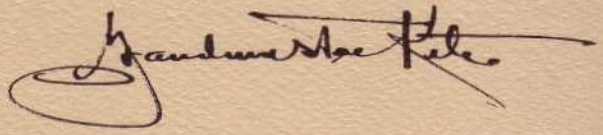


Kite, follow a path
drawn by the Keeper of the Golden String.
Dive in dolphin play
and turn in swallowtail chase,
Tho' the feet touch the ground,
the mind dances with the wind.

We at Grandmaster™ Kites would like to hear from you. Responses to the kite or comments that you wish to share with us are welcome. A group of people flying their Grandmasters together is a beautiful sight and an exciting event. If you are interested in joining us, we will be happy to notify you of times and places. Send your name and address to:

Grandmaster Kites
P.O. Box 12377
Portland, Oregon 97212

Good winds!



Designed and printed by Press-22, Portland, Oregon.

at 1000 feet. Within the first 50 feet is a very sharp velocity gradient, with slow, turbulent air. As altitude increases, the airstream smooths out and velocity increases.

Maneuverable kite fliers are familiar with the ever-changing speed as the kite traverses side to side and up and down. To complicate matters, the drag and curvature of the flying lines are also changing. When flying directly downwind and parallel to the ground, the lines will have minimum curvature. As soon as the kite travels left or right of center, the curves in the lines will start to deepen, attaining their maximum curvature when the kite reaches the stall limit.

CROSS-SECTIONAL DRAG

As the kite travels from left to right, the cross-sectional shape that is presented to the windstream by the lines will constantly change. Although static kite line is round, when the windstream flows over it at an angle, the effective cross section varies greatly from a circular shape. Illustration 3 shows variations of the cross-sectional profile as the kite travels right and left or up and down.

Immediately after crossing the center of the wind, the line's cross section is a low-drag, elliptical shape (*Illustration 1*). As the kite approaches the stall position, the cross section changes to a high-drag rectangular profile, which in part explains why the deepest curvature appears in the line at the stall limit.

Flown directly downwind next to the ground, the primary drag is parasitic, as the windstream blows over the surface of the lines. The effective area drag is at a minimum. As the kite travels left and right, the effective area drag increases because the lines are more perpendicular to the windstream.

Note that effective area drag and effective cross-sectional drag increase and decrease simultaneously. As the effective area increases near the stall position, the section of the lines becomes more rectangular and drag-inducing. Determining which factor is more important—total area or the profile of that area—is next to impossible, although a computer programmer might be able to crunch the numbers and draw some fancy graphs afterwards. But it all boils down to the same conclusion: the smallest line of adequate strength will deliver the best performance.

DIAMETER AND CROSS SECTION

Remember that drag is a function of cross-sectional area, not diameter. A small decrease in diameter can cause a significant reduction in cross section. For example, compare two lines, one of 0.026" diameter and one of 0.032" diameter:

Sectional area = π x radius^2
= 3.1416 x 0.013" x 0.013"
= 0.0005 sq. in.

and:

= 3.1416 x 0.016" x 0.016"
= 0.0008 sq. in.

Note that the 0.0026" diameter line is only 18.75% smaller in diameter than the 0.032" diameter line, yet its cross-sectional area is actually 37.5% less. Imagine the decrease in drag when I switched from 0.106" diameter braided polyester line to 0.032" diameter Kevlar line for high speed flying.

LINE VELOCITY GRADIENT

In a kite's movement from right limit to left limit, the portion of line closest to the flier does not travel more than a few feet, but the lines out by the kite cover a much greater distance in the same amount of time, at what must therefore be higher velocities.

The total wind velocity at any given point along the lines is the sum of the windstream velocity and the line velocity. Note that when the kite is in the stall position, line velocity is zero. When the kite is in motion, the main source of velocity drag close to the flier is from the windstream. Out by the kite the line velocity can be a large proportion of the total windstream velocity. This is consistent with the deepest part of the line curve appearing closer to the kite than to the flier.

LINE VIBRATION

One of the most fascinating aspects of flying kites in very high winds is that everything is pushed to the limit, if not beyond. It takes only a few minutes of high-speed flying to convince me of how little I really understand about kites and kiteflying. I'm always learning.

Recently I experienced line vibration at low wind velocities. Previously, such vibration was something I had witnessed only at wind speeds above 65 mph.

Line vibration is common on very windy days. The kite lines sing as they travel through the air, with the pitch changing as the line tension varies. Generally the amplitude of the vibration increases as the kite crosses the center of the wind and decreases as the kite approaches the stall position. One day, in winds of about 60 mph, I noticed that the pitch of the lines was no longer matched. I figured out what was happening just as the right-hand line snapped and sent me sprawling in the snow!

Not long ago I crashed my kite into the ocean and managed to take off again, thanks to a 25-mph gust that arrived at just the right time. After climbing out of the waves, the lines were shaking off the water in what resembled a fine mist. Subsequent tests seem to indicate that the vibrations are of the greatest magnitude approximately two-thirds of the way up the lines, diminishing near the bridle and not visible in the first 25 feet of line near the flier.

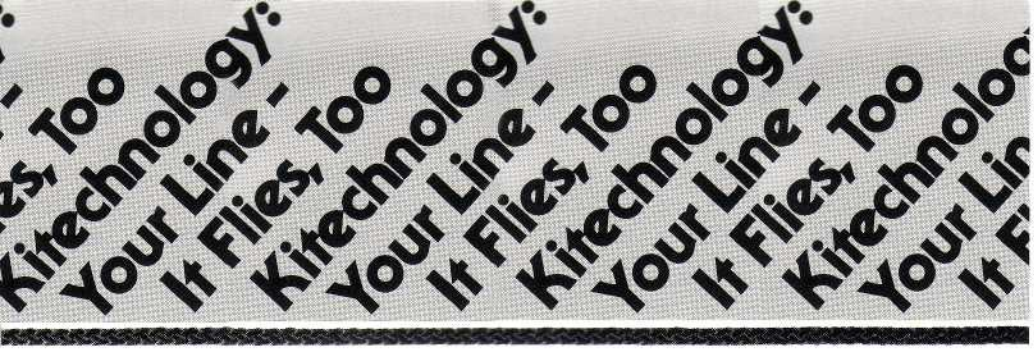
Can line vibration be the cause of the extremely high wear that appears in the center of lines when the kite is flown in very high winds with the lines crossed? Which vibrates more, large or small line? Heavy line or light line? Is the kite vibrating too? Perhaps a kiteflier with a high-speed movie camera will offer to help resolve these questions.

YOU'RE A BETTER KITEFLIER THAN YOU THINK!

In conclusion, consider the complex interaction between your kite and the airstream that occurs every time your kite travels back and forth:

1. Close to you the line velocity is low. Out by the kite, the velocity can be greater by a factor of two or three. If the air is moving past the lines near the kite twice as fast as past the lines close to you, the line drag out by the kite will be at least four times as great.

2. As the cross-sectional shape of the lines changes, the amount of drag will vary greatly, adding to the changes in



drag caused by speed variations.

3. Because of the curve in the lines, there is actually a gradient of cross sections along the lines from flier to kite.

Throw in a few wind gusts and a little bit of ground turbulence for variety and you have one tremendously complicated set of circumstances for flying your maneuverable kite. You should be very impressed that you can fly your kite at all, let alone with the finesse you show every time you go kiteflying.

LINE SOURCES

As kites become more varied and the need for flying line more particular, most kite shops are increasing their inventory—and knowledge—of kite line.

Therefore, we recommend that when you are in the market for line you look first at your local kite shop. Tell them exactly what you want (or ask for their advice). If they do not have what you need, they probably will be glad to get it for you or at least point you in the right direction. Kite shops that cater to stunt fliers will have Kevlar line. If there is no kite shop near you, check the advertisers in *Kite Lines*. You can usually find what you want by mail order.

In the meantime, you can also check your local fishing tackle suppliers. Most of them have braided nylon and polyester (Dacron). Of course, it will help if you know exactly what you want, since most fishing tackle suppliers are not familiar with the needs of kitefliers. Fishing line may also be obtained from mail order tackle suppliers.

Hardware stores, camping stores and even lumberyards can be a source of line if you cannot find it elsewhere. Ask for mason's or carpenter's line—usually braided nylon of 140 to 170 pound test.

A KEVLAR SAMPLER

Ashaway Line & Twine Mfg. Co., Ashaway, RI 02804. Manufactures Kevlar line in four strengths: 50, 120, 200 and 300 pound test. Available in lengths of 1000 feet, 1000 yards or 250,000 yards. Minimum order $100. Ashaway supplied the Kevlar line used by the Gossamer Condor in its English Channel crossing.

Atlantic Thread & Supply Co., P.O. Box 11395, Baltimore, MD 21239. Manufactures *uncoated* Kevlar sewing thread in various sizes—twisted, not braided. The thread can be dyed (dark colors only). Sold by the pound.

Brownell & Co., Moodus, CT 06469. Supplies much of the world's Dacron bow string (archery) and parachute cord. Produces many Kevlar lines, but not for retail sales.

Cortland Cable Co., P.O. Box 352, Cortland, NY 13045. Manufactures Kevlar line in strengths of 55 to 60,000 pounds; diameters from 0.02 to 1.0 inch; lengths to 60 miles (continuous). In June 1983 supplied 85-mile long Kevlar line for use with a tethered balloon lofted to sample gases in the ozone.

Rainbow Kite Company, 221 Hampton Drive, Venice, CA 90291. The maker of the famous Rainbow stunt kite also offers Kevlar line (Herculine™) and a No-Knot™ connection method using a protective Dacron sleeve to prevent the Kevlar from cutting itself. Strengths of 100, 200 and 300 pound test and lengths of 150 feet and 500 yards are available.

Shanti Kite Spools, 2021 Folsom St., San Francisco, CA 94110. Major supplier to kite stores of bulk tubes, spools, spikes and winders loaded with twisted or braided polyester. Braided nylon or Kevlar line is available on special order. Shanti has many contacts throughout the industry and can locate almost any line your local kite shop might want.

Yale Cordage, Inc., Old Sparhawk Mill, Yarmouth, ME 04096. Manufactures braided line only, including polypropylene, nylon, polyester and Kevlar. Available through marine suppliers.

Ultimate Questions:

Toward a Consistent Nomenclat

By Valerie Govig

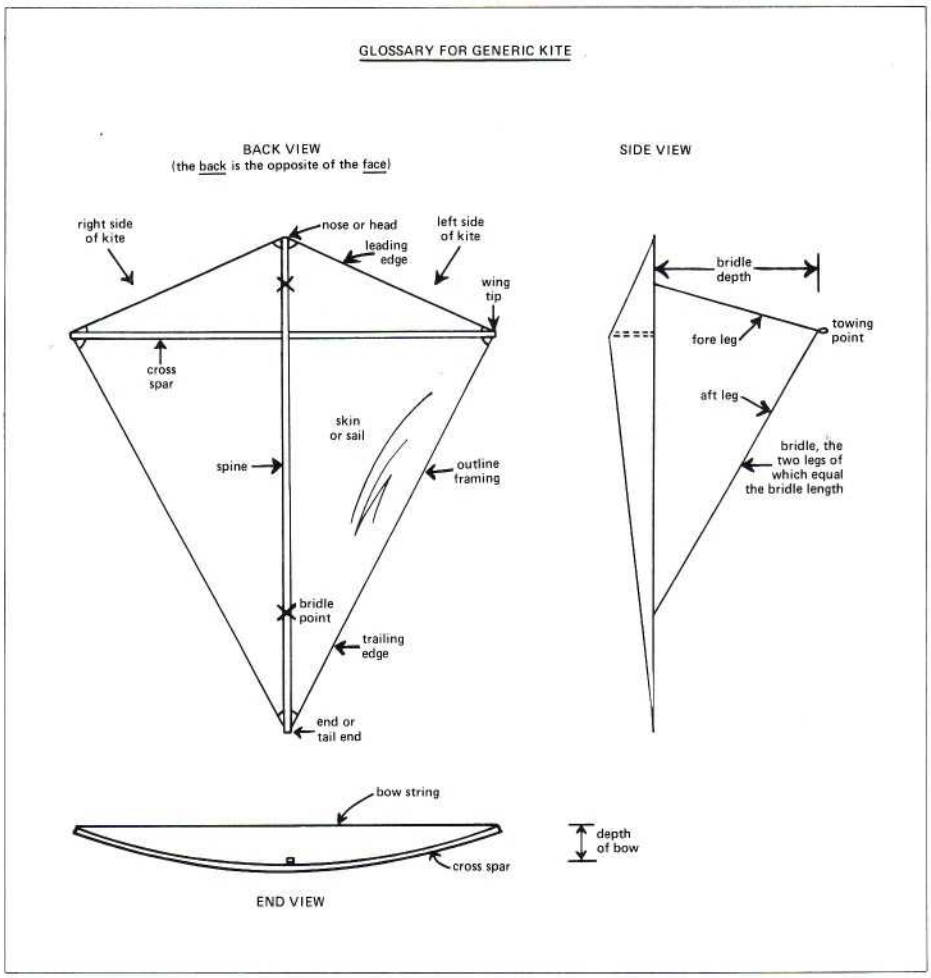
Dealing with printed descriptions of kites is sometimes like picking through a thicket with no sure path laid down beforehand. Each writer draws on a different set of favorite words. Many terms have more than one meaning and slide about in their sentences, grabbing at context to keep them true and functional. Context shouldn't have to work so hard. Neither should readers.

We at *Kite Lines* have been aware of this problem for some time and have been gradually developing a "style sheet" for writing about kites in the magazine. But it wasn't until lately that we turned really fussy about consistency of wording —after Pete Ianuzzi started telling us about the kite nomenclature problem he found in jotting ideas for his planned introductory kite book.

The Ianuzzi notes combined with ours make a first attempt to grapple with the need for a consistent terminology for kiting. By doing this we don't mean to create an in-group jargon in today's world of too many in-group jargons. Nor do we want to lose the variety of approaches that makes kiting so colorful. But sometimes there is a real problem with clarity. Our suggestions are meant simply to improve the odds in favor of precision in talk about kites. (We believe it is antithetical to the purpose of writing to make a subject more obscure than it already is.)

Compiling this list, though, presented a puzzle. We found that our reasons for bypassing certain terms were more *interesting* than our reasons for recommending others. (This reminded us of the way tragedies make headlines while happiness goes forever unremarked. Why oh why?)

Since we are predisposed toward whatever is interesting in kites, we're presenting *both* the nomenclature we favor—**in boldface type,** and the usage we hope will fade—*in italics.* Our suggestions are just that, suggestions—opinionated, not absolute. They are open to ideas from our readers for changes and refinements through the dialogue of *Kite Lines.*



Leading edge, head or **nose** are preferred to *top,* an imprecise word in reference to kites. When a kite is flying, its back becomes its top. In addition, in our canon there is no *up* on a kite.

Trailing edge (or **tail end** if the kite is tailed) are likewise better words than *bottom* or *rear.* **Base** may be a usable word, particularly for three-dimensional kites that sometimes sit down. But in flight the appropriate term would be **trailing cells** or **trailing units.** Also note (reverse of canon) there is no *down* on a kite.

Face is a clear choice over *front* of a kite. Using front causes confusion with the top—woops! the nose.

Back. Because it is the opposite of face, back is the least misleading word among the few available to us. But back is not perfect because it can be confused with the trailing edge. Back should be saved for referring only to the kite's sky side—where the bow-strings are located.

Left, right. We speak of the kite's right and left sides from the conventional view as the flier sees the kite's face.

Bridle and **bridle leg** are classic, graphic terms and recommended. There is nothing to be gained from such variations as *harness, loop* or (ugh!) *belly band.* The phrase *bridle line* is a redundancy.

Bridle points, towing point. These terms are clearer than such circumlocutions as *attachment locations.*

Line is preferred to *string* or *cord* when referring to the working, flying sense. Line bespeaks its function and

ıre for Kites

keeps its neutrality where materials are concerned. On the other hand, **string** or **cord** are usable in specific appropriate cases, for example when referring to bowing (as in **bow-string**) or outline framing.

Struts (or the Japanese import **bones**) are preferred words to *stiffening members* or *longerons,* which, though exact and functional are also rather stuffy and abstruse. *Sticks* regrettably connote wood in an era of synthetics. Usually, though, one can be more specific (which it's better to be) by using, for example, **spine** (a sharply descriptive word for the central vertical), and **spars** (for the cross pieces—wing spars or cross spars, to be even more specific).

Skin is another rich selection from the Japanese glossary, far sexier than the prudish *cover,* which implies a frame that some kites lack. The nautical word **sail** is a useful alternative to skin.

Fabric, cloth, paper. These words are more specific than *material,* and thus better except when the general is wanted.

Trains, stacks, tandem kites. A train of kites is a series of several kites of any size, type, quantity or spacing that is flown from one line. A stack is a closely set train. Tandem kites refer to rigidly coupled kites that may share sections of strut or skin and are linked to fly as one kite.

Maneuverable is a precise term to use for stunter kites and we like precision in maneuverable kites. The word **stunter** is good too, but the word *controllable* is rather less exact. The term *dirigible,* though perfectly correct and usable, leaves behind it the dust of Latin and memories of blimps.

You get the idea. Consider yourself personally invited to speak up—and write down—your improvements to kiting's lexicon.

A New Kite Retreat I

Text and Photographs
by Grant Raddon

Picture the ideal place for a kite retreat and it might look like Fort Worden. It's a Washington State Park perched on the northeast corner of the Olympic Peninsula on the Strait of Juan dē Fuca, next to Port Townsend. Formerly manned to protect the Port of Seattle from sea invasion, the large, majestic wooden buildings rest amidst a mature stand of Douglas fir, which protects a flying field on the windward side. This is the site of the first kite retreat on the West Coast, sponsored by the Washington Kitefliers Association and the British Columbia Kitefliers Association on the weekend of March 9-11, 1984.

Friday: Scattered cumulus clouds and kites float on a light breeze as kiters arrive, register, find their rooms and set up their sewing machines in the post chapel, our assigned conference area. After dinner, we gather in the chapel. Equipment, fabric, kites and patterns completely cover the tables. Where once there was a pulpit is Doug Hagaman's industrial sewing machine —200 pounds of grey iron with a motor as large as your head and lamps that hover like praying mantises. Doug demonstrates the machine's automatic oiling system, which splatters interesting patterns on the fabric.

Following informal introductions and a session of "show-and-tell," we slowly drift back to our rooms to listen to the sea being pulled by the moon around the rocks below.

Saturday: Margaret Greger starts. She shows us plans for a high-aspect-ratio ram delta kite she found in an unnamed British club newsletter. Margaret displays the kite and explains how the parts do not fit and the frame is unworkable. It is a valuable lesson in studying kite plans carefully before committing one's time and fabric.

Margaret next shows the Harpers Ferry Delta, developed by Mel Govig, Alice Mackey and Margaret at a kite retreat in West Virginia last year. Then she presents plans for Len Conover's trash bag Eddy kite, the Facet and other kites.

Angela Dittmar adds suggestions and comments and shows us how to sew a French seam. She has a pattern for the Facet kite developed by Scott Spencer, with the edges cut slightly concave (as Ansel Toney does it) so that under tension the panels remain taut. She also has a pattern for the Super Tube from England and a pinwheel and pennant which climbs up the flying line.

Andrew Cochran shows interest in the pinwheel, so Angela sits him down at her sewing machine. In all his 12 years, Andrew has never used a sewing machine, but that very afternoon he pins a pennant appliqued with his initials on the wall. Sunday he will fly a train of five Conover Eddys he has made.

Nigel Spaxman, who flew a train of three homemade Flexifoils Friday evening, doesn't have much trouble getting our interest in his pattern and explanation of Flexifoil sewing procedures.

Art Grossi, who has worked with stained glass for years, constructs a delta with a black outline; within it a continuous, curving line runs across the wings, intersecting and bending in a never-repeating pattern. He shows us his painstaking designing, scaling, overlapping, cutting and sewing procedures, which result in foliage-like patterns of blue, red and gold: a stained glass window in the sky.

After lunch, Dan Kurahashi flies a train of 120-130 *Hokkai Suzume* or Northern Sparrow kites. Spaced at two-meter intervals, they are strung out over 700 feet when we get a sudden 180-degree wind shift. All the other kites come down. Dan's train floats overhead like blown leaves, but soon is flying off in the opposite direction.

Later, Doug Hagaman separates himself from his duties as retreat administrator and gives his promised lecture on parafoil design: rib shapes, chord height, depth of kite, rear taper, front vents, keel design and placement, comparing models by Dom Jalbert, the San Francisco School and Doug himself. His audience

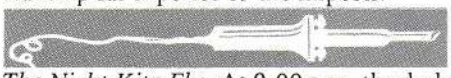
akes Flight in the West

Scenes from the Kite Retreat at Fort Worden, Washington state: Opposite page left is Andrew Cochran practicing his sewing as Angela Dittmar extolls his prowess. Opposite page right is Doug Hagaman at his sewing machine among onlookers, including Margaret Greger at left. This page left is Dan Kurahashi with his train of kites, showing Dave Checkley, on right, the direction the kites were flying minutes before. The lawn drops off on left into Puget Sound. Below, Nigel Spaxman in foreground and Hugh Harrison in background. Right, Toni Addicott kitemaking in the chapel.

staggers under the load.

After another delicious dinner, nervous laughter and chatter fill the air as we await the drawing for the contributed prizes: a Doug Hagaman H-12 parafoil, a Flexifoil, an Art Grossi stained glass delta and other sought-after items. After some debate, Jason Rittinger, age 5, as perhaps the only one who can be trusted as impartial, is chosen to draw the tickets. Jason seems to award the prizes to the wrong people. There is some suggestion that Jason is in collusion and many of us think he appears shifty-eyed during the entire event. The fact that he claims nothing for himself or his mother doesn't deter our suspicions. Margaret Greger wins the most coveted prize, a case of Canadian beer. She isn't too impressed. She starts working on a trade. Someone offers her his sewing machine, his soul and his kite store. She thinks she can do better.

After the drawing, Dave Checkley shows slides from his trips to China and Japan. There are some fascinating dragon kites with elaborately molded heads, but the majority are traditional Chinese kites of designs commonly imported to America—except that these show workmanship far superior to the imports.



The Night Kite Fly: At 9:00 p.m. the dark sky begins to blink and glow. Then the wind dies and the lights descend. Doug Hagaman, undaunted, attempts to relaunch his parafoil with a 500-foot high start. It is so dark you can't see 20 feet. Communication between launchers and fliers is by a messenger boy who runs back and forth, following the kite string. Ten trips back and forth and the messenger boy deserts into the night.

Indoors, various projects are being completed while a party evolves in the lounge, complete with food, drink, musical instruments and voices (some trained, some not-so-trained). Jim Buesing, armed with ice and gin, comes out of his room to complain about the noise. He is persuaded to join the merrymaking. The party winds down at an unknown hour.

Sunday: There is speculation over breakfast about the ruckus at 4:00 a.m. which sounded very much like someone falling down the stairs. All are present and accounted for, and the cause of the early morning disturbance is never explained.

Dan Kurahashi starts us off in the morning splitting bamboo, going from two-inch-diameter poles to 1/16-inch slivers. Then he gives each of us a 4x6-inch piece of rice paper with a wood block print of the Japanese symbol for dragon. We assemble and glue the frame, paint the cover and bridle our 3x5-inch *Edo* kite to take home.

Teenager Trina Kokenge had been somewhat indifferent to the whole weekend until she won a beautiful Chinese butterfly kite in the drawing Saturday night. Sunday morning she is working feverishly at a sewing machine. B. J. Wallick brought a broken umbrella with a beautiful cover. She converts it into a kite and flies it Sunday morning. Steve Warning makes a Flexifoil between demonstrations and flies it Sunday afternoon. Doug Hagaman has so immersed himself in organizing and arranging the whole show that he never does get around to showing us how to make a parafoil.

Afterthoughts: A questionnaire to the participants after the retreat drew a unanimously positive response. Several said it was the best fifty dollars they had ever spent. All 48 of us agreed that the location, accommodations and food were matched only by the fun, friendship and learning each of us shared. Naturally, the kite retreat calls for an encore, which seems likely for this summer or winter. I'm already planning to be there. ▽

GRANT RADDON taught college physics for 12 years, worked in social service fields for seven years and then settled down and created Windplay, the kite store in Portland, Oregon, eight years ago. He is a kite program consultant to several schools in the Pacific Northwest.

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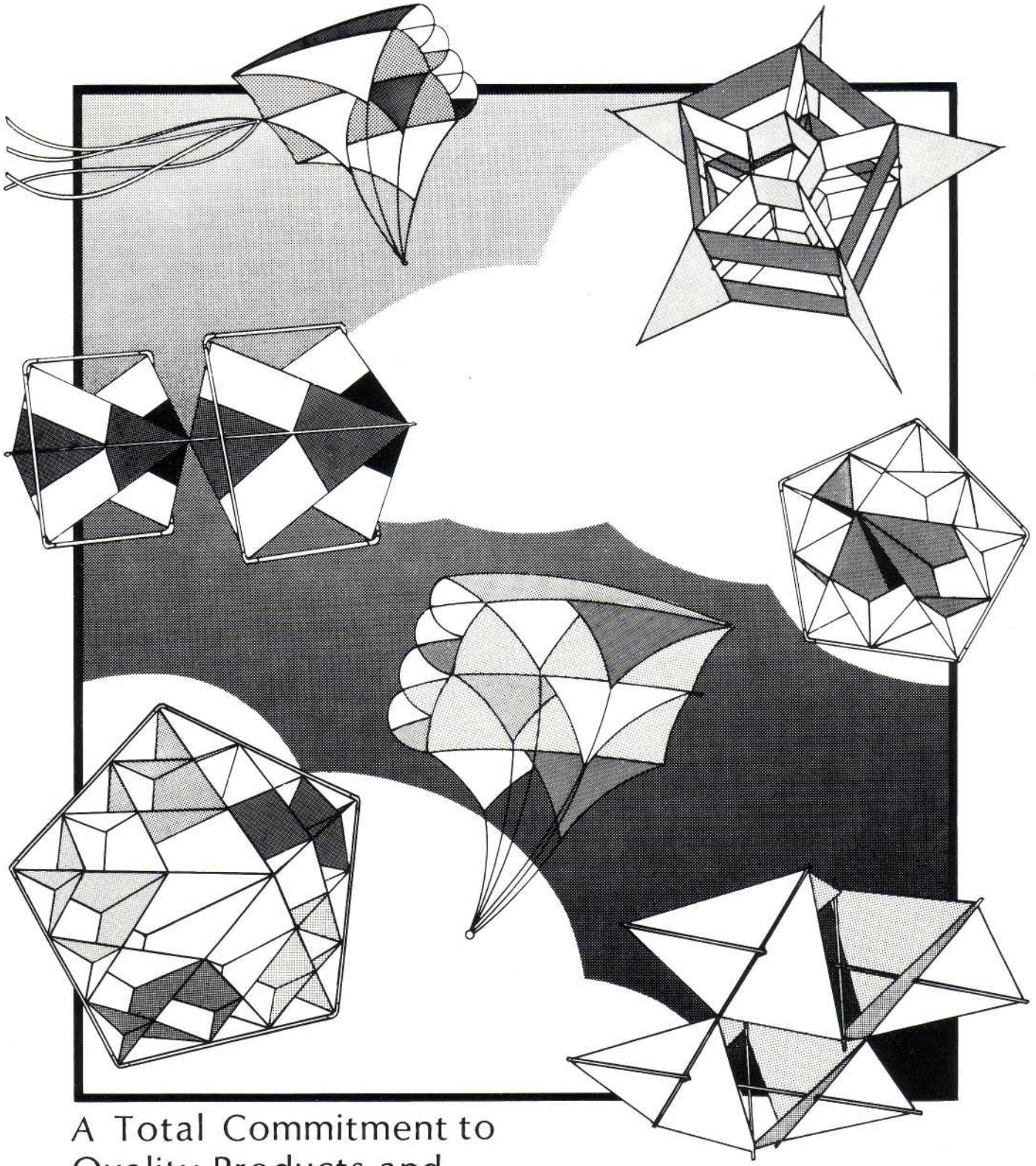

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a little puff:

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A. The line.
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Here you'll read about everything from dual-line stunt kites to oriental fighters and inventive designs made of space-age synthetics—all meeting in the pages of this exciting, award-winning quarterly, *the* source of international kite news. Plans, techniques, reviews of kites and books, profiles of kiting personalities, in-depth feature articles—and unusual advertisements, too—fill the pages of *Kite Lines*. Noted for its fine photography, design, and printing, in a generously visual 8½x11" format, *Kite Lines* is fit for your coffee table—if you can stand to leave it there. But it's likely to become dog-eared, used, saved and cherished for its authoritative information, available nowhere else.

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Paul Edward Garber
Historian Emeritus, National Air & Space Museum, Smithsonian

I wonder if there's another single human-made object quite so special as the kite. *Kite Lines* brings us the hum, the music of the line. It's *our* magazine.

Tal Streeter
American sculptor and kite authority

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profiles:

Henri Huttges teacher & dreamer

Text by Laurence Fissier
Photographs by Jacques and Laurence Fissier

People live like larvae. Will we perhaps one day have our gaze solidly riveted on the ground? People jump into their cars; whether it's nice weather or not is no longer of any importance. They pay no attention to nature, people, the world, life. . . Thus speaks Henri Huttges, a tall likable man who does not look to be his 50 years. A former electrical worker at the factories of the Peugeot auto company, he gave up the assembly line a dozen years ago to become a director at the

recreation center of a densely populated, needy neighborhood in Belfort, in eastern France. Since then, he has become an ardent kiteflier and has already acquired nearly 300 kites.

It all began in 1974 with some workshops to entertain the children. The first time, using wrapping paper, ordinary string, pine sticks and newspaper tails, they made 39 kites—the most classic of French kites, the diamond—without using specific patterns. That day, things went more or less well. The kites became tangled and the kids became bored—but not Henri. He soon began wondering why the first kite that comes to mind in France is the diamond, which is a continuing traditional kite despite changing fashions. French engravings dating from 1630-50 confirm the existence of this popular design.

"You have nothing to lose," says Henri Huttges of kitemaking, "and if it succeeds the first time, a passion can follow." Something had slowly germinated in Henri's spirit. A calm, accessible man with a soft voice, he gives you a sense of serenity with a single word.

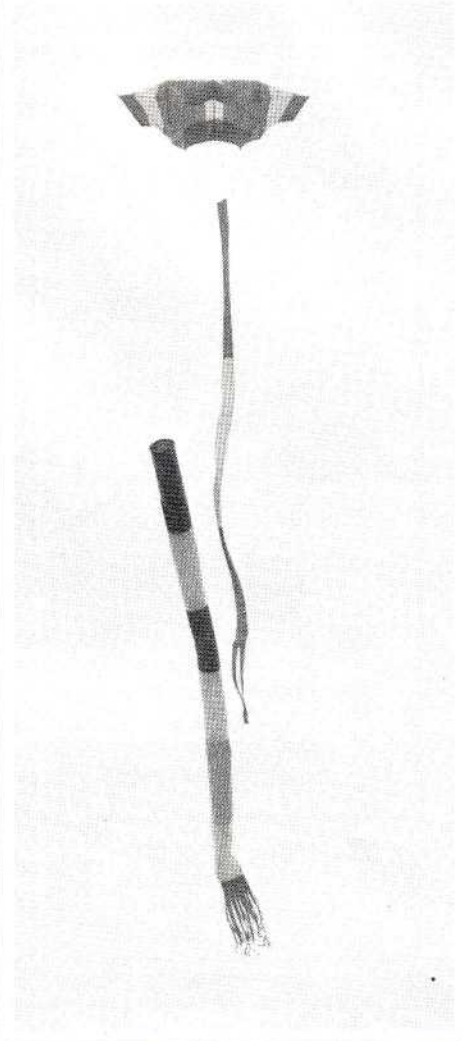
"It is important to make people understand that trees bend in the wind and clouds change shape very quickly when the eyes are turned skyward. Kites are a return to a simple, humble activity for which one does not need enormous sums of money."

Henri speaks also of "the spirit which takes flight at the end of the string, and in addition the imagination that flows. The mystery of the kite behind the clouds . . .the rustle of the wind, a fantastic orchestra and heavenly music, which changes with each kite. . .and then the vibrations. . .the rising currents in good weather. . .the image of kites as gliders, as birds". . .Henri chokes up, he is so deeply involved in the inexhaustible subject.

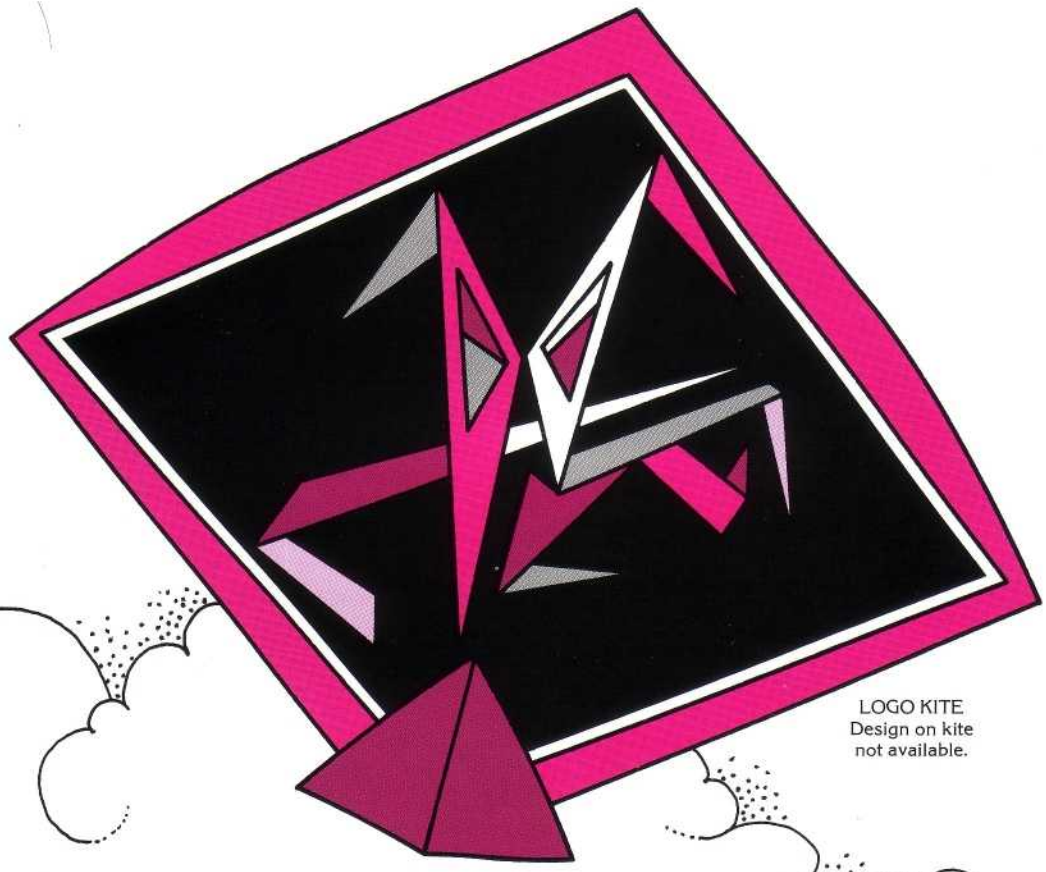
Now he thinks he must go to the village to meet the others, those who do not know kites, to give them a taste of escape. He will teach them to lose track of time, to feel a rapture after a day in the fresh air, to have at least one passion (especially if it serves no purpose), to make people interested in something besides the games of money. Such is his enthusiasm, such are the goals of Henri Huttges, a wise man, always interested in others, especially when they share kites.

ADDENDUM

The following story about Henri is true, and it could also apply to other kitefliers. One nice day Henri sees one of his kites suddenly fall into a tree. He could have cried, he so loved that kite. He tries pulling on the line, a little to the left, a little to the right, even tries to climb the tree, but in vain. He sees only one solution. It's simple: cut down the tree! Imagine a kiteflier who actually cuts down a tree to recover a kite. Henri did it! (I should add that it was a very common type of tree, so Henri didn't hesitate to chop it down.) ♢



Opposite page, top: Henri Huttges prepares to launch his double French military kite; bottom, Henri holds onto the line. This page: below, a group of young people in Belfort, eastern France, gathers around Teacher Henri; top right, Henri's double French military in the air with tubular banner on the line; bottom right, Henri at his happiest, kiteflying.



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A TALE SPUN BY A WINDSPINNER

Once upon a time there was a beautiful young maiden named Sarah. Sarah was as lonely as she was lovely, as her overprotective father kept her locked away in the castle until a suitable suitor came calling. Sarah amused herself by staring out her window at the world beyond the castle walls and admiring her varicolored jewels glinting in the sunlight at her window.

Sarah would not remain lonely long if Hiram, the Kite Flyer, had his way. Hiram had spied the lonesome lovely lass looking out her window as he was retrieving his kite from a tree at the edge of the castle walls. Thereafter daily he sought entrance to the castle but was turned away as he was but a lowly peasant.

Each day as he was sent away from the castle gate he would endeavor to catch the eye of the lovely Sarah by flying his kite within view of her window—but his efforts were in vain.

Then one day an astute businessman came along, saw Hiram, found out about his fruitless efforts and said, "Have I got a deal for you." He went on, "You'll never catch the eye of the lonesome lovely with just a kite—everyone knows her eyes are trained on her multicolored jewels sparkling in the sunlight. You, my boy, need a WindSpinner.

"For just $4.95 retail you can capture the color of her jewels and have them dance in the sunlight on your kite line."

Hiram replied, "Sounds good, but $4.95 is all I have left in this world."

The astute businessman said, "Trust me!"—which Hiram did. (From here on the story gets mushy—rated PG.)

The WindSpinner, like a jewel spinning in the sunlight, indeed caught the eye of the lovely lass Sarah. She begged her father to have the kite flyer brought in to see her.

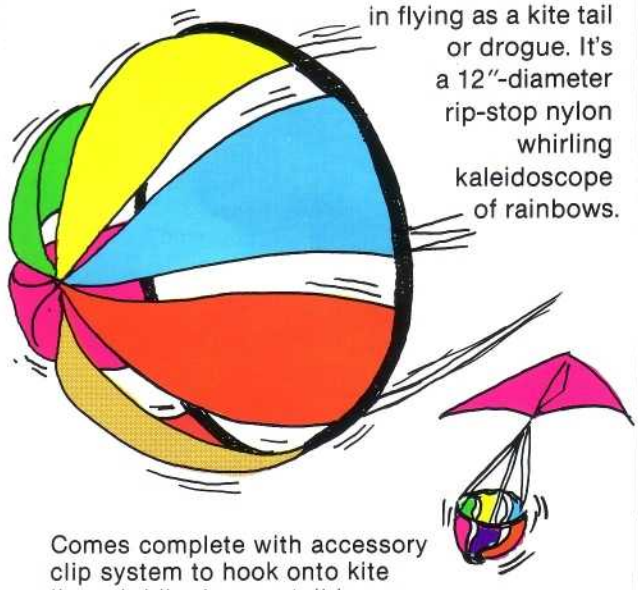
As Hiram was brought into the presence of Sarah and her father, Sarah said, "Hi." Hiram said, "See, we're made for each other—she knows my nickname."

Sarah's father, puzzled yet delighted at his daughter's happiness, blessed their marriage and laid on Hiram a dowry of a new rip-stop Jalbert Parafoil.

As Hiram rode off into the sunset with the lovely but no longer lonely Sarah at his side and the WindSpinner sparkling in the sunlight on the kite he held aloft (with a "just married" sign on it), he was heard to exclaim, "Best $4.95 I ever spent!"

And of course they all lived happily ever after.

The WindSpinner is the newest sensation in flying as a kite tail or drogue. It's a 12"-diameter rip-stop nylon whirling kaleidoscope of rainbows.



Comes complete with accessory clip system to hook onto kite lines, bridle rings or tail loops. Yes, you can *stack* them!—and get double—or triple—the fun. To misquote Henry Ford, "You can have it in any color as long as it's rainbow." (But you can order custom colors for $2 additional.)

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Text by Tom Horton
Illustration by Billy Davis

I think no one can fully appreciate the wind, whose enormous influence on works of man and nature, still being plumbed by science, ranges from the shape of the Sphinx to the number of baby rockfish that grow in Chesapeake Bay.

Older races must have intuitively felt the wind's elemental, evocative power, to judge from the time the Old Testament has God manifesting himself from the "tempest" and the "whirlwind" (see Job, chapters 38 and 40, for some rousing examples of this kind of theophany).

More recently, some brilliant computer jockeys whose major deity is IBM have been shaking their heads at what the wind has revealed to them.

In attempting to construct complex mathematical models of Chesapeake Bay's circulation, they knew their equations must reflect to an extent the influence of the prevailing winds on tide and current.

But they never dreamed that they would find the wind is dominating the cosmic clockwork of the tides perhaps as much as 90% of the time.

That would not surprise the management of Curtis Bay's coal pier, not since April, 1982, when a northwest wind blew hard for two days and blew so much water out the bay's mouth that low water hindered shipping for nearly three days.

Even greater may be the wind's power over the fisheries of the bay, according to some emerging theories.

The blue crab hatches at the estuary's mouth and is carried seaward by currents for many miles, a contact with high salinity that may be vital for its larval development.

But how do the feeble, microscopic larvae ever buck the mighty currents of the Virginia capes to fulfill their proper life's goal as succulent eating for a million Maryland crabbers up the bay?

A major factor is the wind, which usually blows them back inshore. And what if it blows offshore some years (as it does)? Then crabbers baywide will curse and wonder at the crab's caprice.

To enhance survival of rockfish and other bay species, it may take only enough wind to generate a mild ripple on the water, scientists are beginning to suspect. What they think happens is the wave action vastly increases the amount of contact that occurs between the larvae and their food supply (plankton).

But this is only a little of what the wind does. To know its full glory you must be better interpreters than the scientists.

Sometimes, if you visit a quiet pond or cove still fetchingly rouged by the dawn, the wind as it breezes up will show you the most marvelous calligraphy as it etches its passage in obsidian strokes on the seamless, rosy surface.

Seldom does the wind leave its mark more pleasantly than when it shoulders

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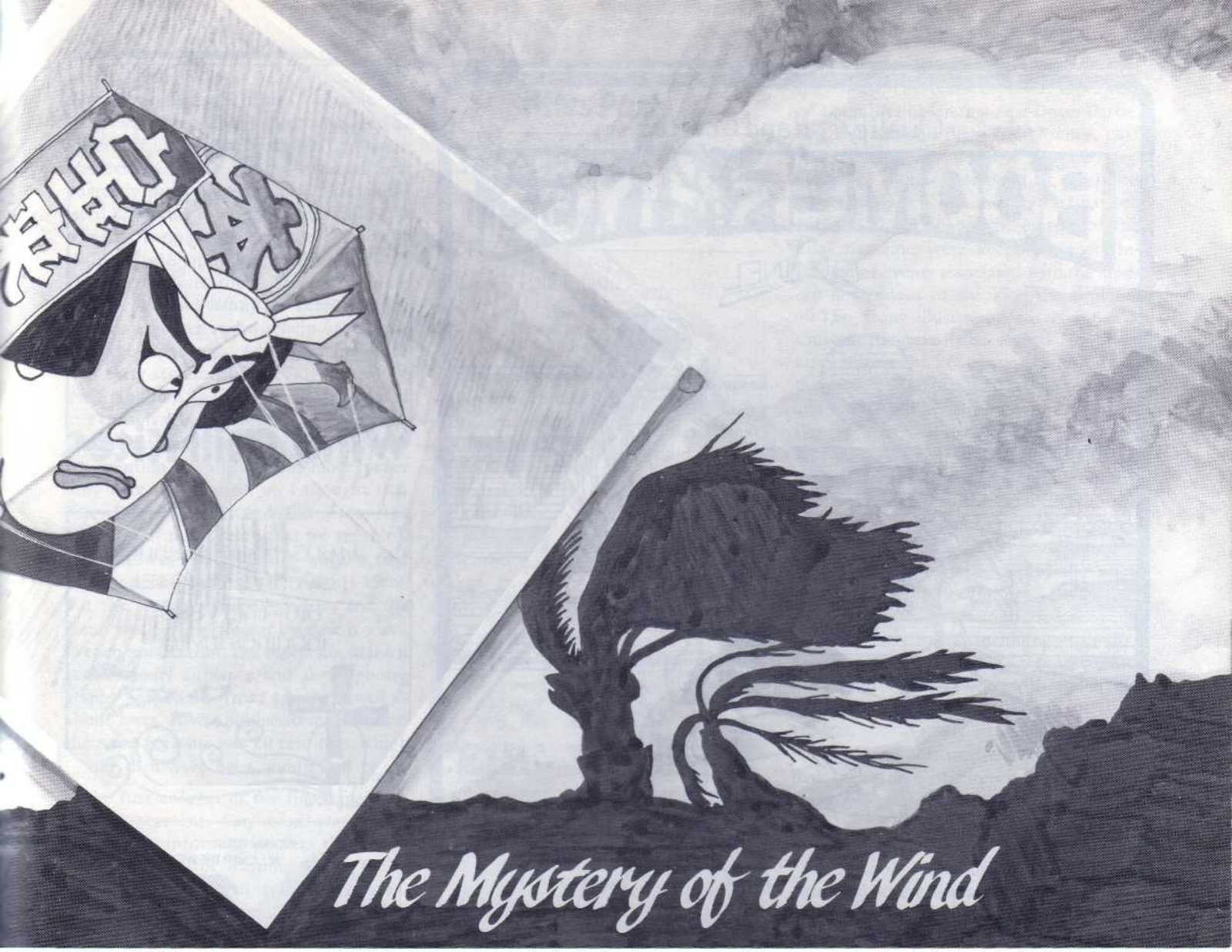
Tom Horton is the environmental reporter for the Baltimore Sun. *His observations seem especially appropriate for kitefliers who seek a greater understanding of our most essential partner—the wind.*



The Mystery of the Wind

through a bay marsh, the reeds bending to outline its every ebullition, rustling like taffeta as they strain to hold it, sighing as they always fail.

Some trees seem especially to go pleasurably with the wind, like certain vintage wines and cheeses. Aspens and willows pay it shivering, silver tribute as the wind flutters the etiolate undersides of their leaves; and tall pines pluck the sweet, mournful strains of violas from its passing roar; and in autumn the percussive rattle of the wind among sere, shiny oak leaves is invigorating as a Sousa march.

But cedars, because they endure so, are best at translating the wind's passage. There is a forest of them on a certain Virginia coastal island, very ancient, miles from the sea now, but so twisted and bent to the landward they must have grown once on the shore. In their fantastic convolutions you can read of the storms that blew there during a thousand years.

The whole island, in fact, is a testament to the way stormwinds play with the unagglommerated, sandy soils of these coastal barriers, shifting them landward, seaward, back again, in a geologic game of serve and volley—a game the wind always wins, as men who build on the shifting sand are learning.

And even that is not half of what the wind does. It shapes the very flight of wild geese into the long, pulsating vees that are both aerodynamically efficient and strangely thrilling; and set loose among the clouds, the wind's artifice as a sculptor knows no bounds—flattening, fattening, shredding, kneading—as if engaged in some sort of celestial taffy pull.

And that is not all the wind does.

I mentioned the Sphinx. It has endured now for so long that its ability to withstand the ravages of time is a greater mystery than its origin. It seems its basic shape is supremely aerodynamic, relatively impervious to erosion from desert wind and sand.

Were its ancient builders that wise? Perhaps they just observed the wind.

Scientists recently have studied huge natural limestone formations in the Egyptian deserts called "yardangs," carved by the wind. These formations are so aerodynamic they exist in near-perfect harmony with their sites—and they look remarkably like the Sphinx. Quite possibly the Sphinx is constructed around a yardang.

And that is some of what the wind does.

It does not yet explain the thrill some people get from the slightest breath of wind on their face, or the adrenalin a lowering thunderstorm sets to flowing, or the insane desire—I have heard quite a number of people express it—to stand in the full blast of a hurricane.

There is in us, it seems, an affinity with wind quite deep-rooted and mysterious. Perhaps the account of the Creation seized on it in the first few lines of Genesis.

Readers of modern versions of the Bible know the passage as "The spirit of God moved upon the face of the waters..."; but check any good annotated version of the Bible and you'll find the original translation of what that "spirit" was.

It was the wind. ♢

Kites Past:

The First Kite MAGAZINE

By
Paul Edward Garber

Historian Emeritus,
National Air & Space Museum,
Smithsonian

Every loyal reader of *Kite Lines* knows that the predecessor of this magazine was *Kite Tales,* originated by Bob Ingraham of Silver City, New Mexico. Its first issue was dated October 24, 1964 and its final quarterly issue, November 1976. It stimulated kiteflying throughout the world and earned a permanent place in the hearts of all of us who enjoy kiting. On March 17, 1977, *Kite Lines* took over and we have been proud and happy to keep it flying with fair breezes and the help of readers.

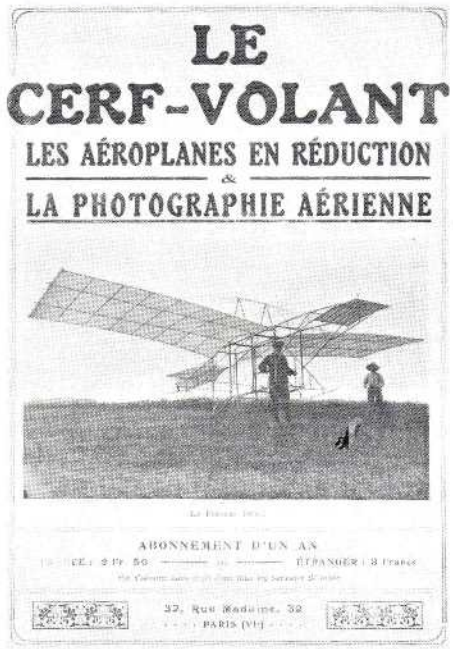
Some time ago, when delving back into early accounts of kiteology, I read of the Franklin Kite Club, which was formed in Pennsylvania a hundred or so years ago (give or take a decade or two), but I found no mention of any intermember paper they may have issued, so I thought that *Kite Tales* was first and *Kite Lines* was second, but now I learn that we are third.

What was probably the world's first kite magazine was issued in August 1909, but the month was spelled *Aout* and the name was *Le Cerf-Volant* because it was a French publication. The reader could learn about model airplanes and aerial photography (especially from kites) as well as about kites. It was published in Paris, and the price per issue was 20 centimes, which would then have been about four cents.

The first column of the first page was an announcement: *Cerf-volantistes, voici un drapeau,* informing readers that here was a medium for learning about their favorite aircraft. Then followed a five-column article describing the many ways in which kites had proven to be of practical value—in meteorology, wireless telegraphy (to elevate the antenna), signalling, lifesaving, raising military observers, and other uses, the text predicting that further development would result in additional

...aerial photography described by Captain Saconney...a hand-launched glider made by folding a piece of paper ...a review of Lecornu's new book... reels of several forms...

useful applications. To encourage such progress, a prize of 10,000 francs (then about $2,000), *Le Prix du Commandant Dollfus,* was announced on page four with five columns listing the conditions for competition. Aerial photography from kites was described on pages 8, 9 and 10 by Captain Saconney, who was very active at that time in the development and use of huge box kites for lifting both army and naval observers. Model aircraft were represented on page 11 with a short article and illustration describing a hand-launched glider that could be made by folding a sheet of paper. Page 12 included short articles about current news of kites. Page 13 described an excellent book written by J. Lecornu, described as a member of the Society for Aerial Navigation. Published in 1902, this was certainly the best source for information on the types and construction of kites until the revival of interest and publications in recent years. The first magazine issue closed with a full back page advertisement of model airplane parts and materials.



A 1909 issue of the first kite magazine is 20 centimes and shows "Le Planeur Fillon."

The cover of the next monthly issue showed a man-carrying glider, and the opening article described Lawrence Hargrave of Australia and his box kites as well as his efforts to develop a man-carrying airplane. Issue 3 had an impressive picture of a man-lifting Cody kite on the cover. The rear cover was a drawing of Louis Bleriot landing near Dover Castle, England, after his flight from France. That was then-recent news of worldwide interest, since Bleriot was the first person to fly an airplane across the English Channel, July 25, 1909. Thus, the editors of the kite magazine were keeping readers informed of events associated with the modern descendent of the kite, the airplane.

The front illustration for Number 5 showed Hargrave with several large box kites testing the lift of some kites out of the picture. The principal article described and illustrated aerial photographs from a camera attached to a pigeon. (How the bird could fly with such a load is not explained, but the photographs indicate that several pictures were made.) With the next issue, the cover was of thicker stock in light blue, the inside pages remained at eight, as in former issues, but the price was increased to 30 centimes.

Thus, the magazine continued, showing kites of many forms, including single-surfaced, angular-vaned (as in a recent Rogallo kite), and cellular, some with stabilizers and combinations of cells and surfaces. Gliders, both small hand-launched and man-carrying, historic and then-current, had their share of interest with descriptions and photographs. Powered airplanes were described as they advanced through 1910 and 1911.

Les treuils (reels) of several forms are described; there are articles on elements of aerodynamics in kites; other texts inform about air flow around hills and buildings; kite structural details are illustrated; and there are reports of two national organizations: the Kite Flying Association of Great Britain and the Ligue Francaise du Cerf-Volant. Today's Cerf-Volant Club de France inherits a distinguished lineage.

...a drawing of Louis Bleriot arriving at Dover Castle...Lawrence Hargrave with several large box kites... aerial photographs from a camera attached to a pigeon...

This article is based upon two volumes (24 numbers) of *Le Cerf-Volant* which I scanned at the Musee de l'Air in Paris. Information is lacking regarding any further issues after Number 24, dated July 1911. Maybe someday we, or a reader, may come upon Volume 3 and maybe more. Certainly *Le Cerf-Volant* encouraged its readers to have a progressive interest in kites and other forms of flight. ▽

Empty Spaces in the Sky...

Kiters everywhere were deeply saddened this spring to lose three prominent kiters. Two of the deaths coincidentally fell on the same day: April 1, 1984.

Wyatt Brummitt

Wyatt Brummitt, author of the classic Golden Guide book *Kites* (1971), died on April 1, 1984 at the age of 87 in Winter Park, FL. He had been working on a new volume to be a replacement of his guide, now out of print.

Wyatt was a man of many interests but was first of all a writer, and he spent 40 years behind typewriters at Kodak. He authored a book on photography in 1973.

Wyatt was the keynote speaker at the organizational meeting of the American Kitefliers Association called by *Kite Lines* in Ocean City, MD in 1978. His speech, "The Sky Is Big Enough for All of Us," was reprinted in a subsequent *Kite Lines* and has been reread and quoted ever since.

He leaves his wife Esther, two children and thousands of friends. A tribute to Wyatt will appear in the next *Kite Lines.* V.G.

Alick Pearson

In England, Alick Pearson died at the age of 89 on April 1, 1984. He had been one of the most active of the Round Pond Fliers, a legendary group of kiters who fly on Sunday afternoons at the Round Pond in Kensington Gardens, London. Alick's Roller kites, bird kites, split Malays and others were to become classic British kites, shown in David Pelham's *Penguin Book of Kites,* and manufactured by Vertical Visuals and other makers. Dan Leigh, a Pearson admirer, commented: "He was a lovely old bird—made 24 Rollers a week just a couple of years ago." *(See story on Alick's Rollers on pages 30-31.)* V.G.

Alick Pearson as seen in the pages of the Spring 1978 European Kiteflier.

John F. Van Gilder

Louise Crowley at Gasworks Park, Seattle, in 1979, flying VIBGYOR (an acronym for all the colors in the rainbow), one of her hand-sewn double Conyne kites.

Louise Crowley

Louise Crowley, Seattle kitemaker and flier, died of cancer on March 20, 1984, just five days short of her 64th birthday. She was a much loved member of the Washington Kitefliers Association, which is sponsoring a Louise Crowley Memorial Kite Fly on the first of May each year.

Louise majored in anthropology at the University of Washington. During World War II she worked in labs and shipyards at various times as a machinist, carpenter, welder and metalworker. In 1950 Louise met and married George Crowley and had four sons. Both Louise and George were active in the civil rights and labor struggles of the 40s and 50s. Louise renovated old mimeograph machines and turned out numerous bulletins for many causes.

Louise was a careful observer and writer. She collaborated with area feminists in the 70s to write a manifesto that was reprinted in Robin Morgan's book *Sisterhood Is Powerful.* The Crowleys were active in their neighborhood and city, following events closely and commenting on school curricula, urban renewal, model city plans and other issues.

About 10 years ago Louise decided to start making kites again (she had made and flown kites as a child). Her kites were built to fly. Often using salvaged materials, she made each kite by *hand sewing,* including applique. She researched the designs and spent hours testing her kites. In spite of this, she regarded herself as a novice. She was the subject of a profile by John Van Gilder in the Fall 1979 issue of *Kite Lines.* She wrote about kites herself in our journal, Winter 1979-80 issue, recounting the visit of the Shirone kite team to Seattle.

In the spring of 1983, Louise took the kitefliers tour to Japan and China with the help of her sons and many friends. "She'd be up early and out in the square in Peking flying kites and meeting people," recalls Pat Gilgallon. "She had such a zest for life."

The above article was adapted from writing by Louise's friend, Dorothy DeCoster.

Pat York Gilgallon

Louise and centipede in China, 1983.

In the spring of 1978, Louise Crowley made a Marconi-rigged sail-kite following the plans in *Kite Craft* by Lee Scott Newman and Jay Hartley Newman, except that she modified the jibs according to a proposal put forth by Dr. James Duffin in the Spring 1977 issue of *Kite Lines.*

Over a period of two-and-half-years, she tried to get the kite to fly to her satisfaction. The Marconi refused to cooperate, but Louise refused to give up.

In the summer of 1980, Louise learned that the AKA convention was scheduled to be held in Seattle, her home town, in October. Anticipating this, she decided to show the kite to some visiting "experts" and seek their advice.

The following letter was written to Pete Ianuzzi of Baltimore on October 7,

three days after their meeting in Seattle.

We think that this letter, more than any words we can write, reflects many of the characteristics that so endeared Louise Crowley to her kiteflying friends.

Dear Pete: Here's the rest of the story on my Marconi: the kite's notorious around here, it turned out to be such an utter disaster. When I first made the darn thing, it had a spar made out of two sections of a broken bamboo salmon pole that I'd found in a garbage can. That turned out to be much too flexible. Maybe it wouldn't have been so bad in a lighter wind, but everything I'd read about Marconis told me they were a pretty high-wind kite, so I never even tried it out in the doldrums. Anyway, the damn thing just buckled in the middle with its spar tips flexing almost straight back—a real fiasco.

Our annual kite show at the Science Center was coming up, and some of the guys who'd seen it while I was building it wanted the thing in the show. I balked at that on the grounds that if it won't fly it's not a kite and doesn't belong in a kite show. They insisted I put it in the show anyway with any old kind of spar, just as long as it'd spread the wings and make it look right. I told them I didn't give a damn what a thing looked like hanging from the ceiling if it didn't look that way in the air. Big argument, and as with most arguments, numbers decided it.

The only other thing I had was a fiberglass bicycle pole, with the right flex, but a ton too heavy, and besides, I'd already whittled the hole in the hub to fit the original spar. So okay, I whittled a bamboo plug to fit the hole and reamed it out to take the bike pole instead; and that's how it went into the show and how it went out for its next flight test, which happened not in the privacy of my own back streets, but up in Vancouver at the Great Pacific Rim Festival.

John Dusenberry, Tom Sisson, Carl Brewer and I had driven up there in a gale and a pouring rain, me consoling myself with the thought that the weather was so bad I wouldn't have to try to put that thing up that day anyhow. The rain stopped at the Canadian border, and the sun came out for a whole beautiful afternoon. I unpacked the thing at Vanier Park feeling like I was walking to the gallows.

Well, we tried it. Each time it spun on its axis like a windmill, and crashed ignominiously on the tip of its spar. Not necessarily the same tip: either tip, at random. It was awful. Of course, I wouldn't give up, so this went on and on, with periodic bridle- and bowing- and jib-adjustments, and exactly the same result no matter what we did.

Meanwhile, there was a tall, distinguished-looking chap who hadn't been flying anything all afternoon, just observing the proceedings, looking amused but not openly laughing. At just the right psychological moment, he approached me and asked if he could try it. I handed him the line and stood back, holding the kite, and he lofted it up through the ground winds without a quaver, just straight up the first time, no tipping either way, straight up till it rode like a summer cloud, light and steady about 500 feet up—beautiful! Then he handed back the line and disappeared, and there I was, holding as well-behaved a kite as anyone could ask for. I flew it exultantly the rest of the afternoon. Then I tried to bring it back in, and as soon as it reached that ground turbulence again, it spun like a windmill and crashed on its spar end.

That's all it'd done ever since, until this Sunday. It'd only flown once, for that one fellow whose name I don't even know, in a city I don't visit more than once in a half-dozen years. I'd have thought I'd hallucinated the whole incident, but Tom and John had seen it too. We'd all watched very closely how he'd done it—he had a feather-light, coaxing touch on the line—and we all tried, over and over, to duplicate that, but always the thing just spun and crashed. After a few months of this, I concluded that even though we knew the thing would fly exactly the way it was, if flying it that way took a skill we couldn't master, then further modifications were in order.

After a while, I found a nursery that had some unusually straight and long-jointed garden stakes, picked out a couple of well-matched ones, and made the two-piece spar. Jack Van Gilder and I took it to a park to test it in a fairly fresh breeze. Same result: even with the lighter spar, tapered toward the ends, it still spun the same way and crashed—not quite as heavily, but just as decisively as ever. Jack, who hadn't seen it fly in Vancouver, was ready to give up; I was just getting more and more stubborn.

I tried a few more things before the convention: traded the drogue for a series of tails, added an after-keel like a roller's; nothing helped. So I stripped it down to the way it had been that day at the park and stowed it away to wait for the experts. That was last spring, about two years after the one time it had flown.

Saturday was the first time I'd had it out for months, and I was downright jittery with anticipation. When I showed it to you, I felt like the local church choir soloist auditioning for Gatti-Casazza.

Of course, I'd already tried the things you suggested, though I didn't have the nerve to tell you. I'll try 'em again, I thought, but I hadn't made any changes by the time I showed it to Bevan Brown the next day. He said to move the bridle point aft, tighten the jibs, bring the mains'l below the spar and lash its leading edge to the spar, reduce the pocketing as much as possible, etc. Oh, great, I thought—two guys, both of whose opinions I respect all to hell, each giving me diametrically opposed advice—Crowley, you're still on your own.

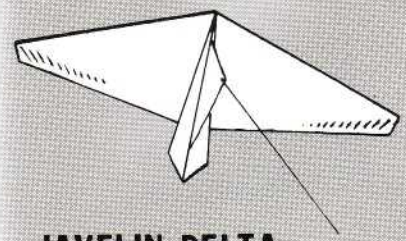
I was sitting there retying all the lines when another Jack, who flies rollers, came over and commented that he'd never understood why Marconis needed a four-point bridle. He and Joe Vollmeck wanted to try flying it from a two-point bridle like a roller—something I'd had too much faith in the sail-kite literature even to attempt. Well, Joe held it while Jack took the reel downhill, and with the lateral bridling lines dangling loose from its spar-tips, in almost a dead calm, with no drogue or tail or anything, that kite lifted off and rose as smoothly as a delta and just sat there, almost straight overhead, unmoving, riding on the merest breath of air. . .I just couldn't *believe* it!

But then it'd done that once before, for some other guy—never for me. I asked Joe to hold it while I put it up, and up it went again, with no problems at all. After an hour or more, we got a bit more breeze, at which point I put on its drogue and sent it up again—perfect. Our four-o'clock wind finally rose enough to make landing it something of a test, so I brought it back then and it came easily, with no antics at all when it reached the ground turbulence, coming right to my hands like a perfectly tamed kite.

So. You can tell anyone who asks that a six-foot-wide Marconi sail-kite doesn't need the wing-tip bridle lines called for in all the published plans, and that if it has a bamboo frame and is flown with Genoa jibs it's an ultra-light-wind flier. I haven't had a chance to try it in anything more than a six-mile wind, but the way it acts now, I'm pretty confident that it'll behave nicely, at least up to the point I'm ready to trade for a box kite.

Right now, all I know is that *this* Marconi flies in ultra-light winds. It promises to be a really fun kite to fly, and it's as graceful in the air as any configuration I know.

So much, for now, for Marconis. ♡



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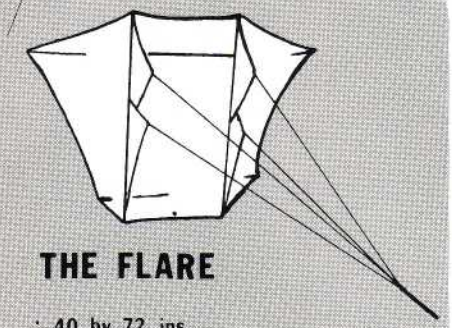

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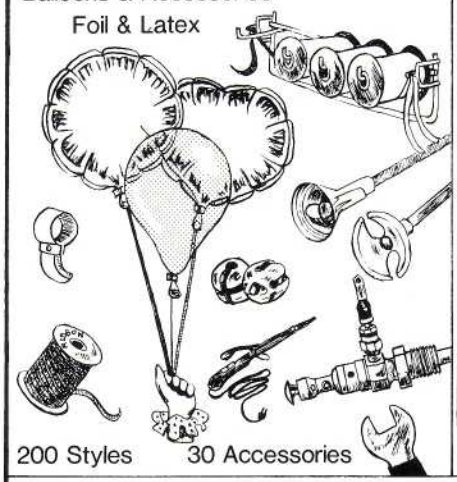

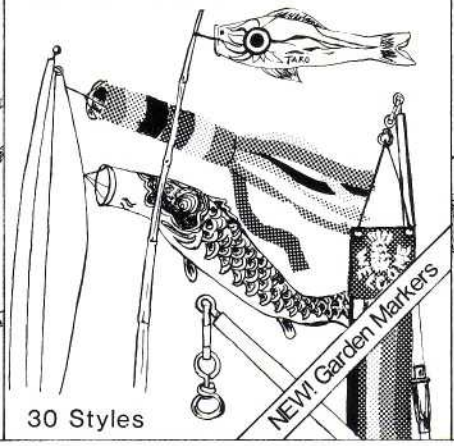

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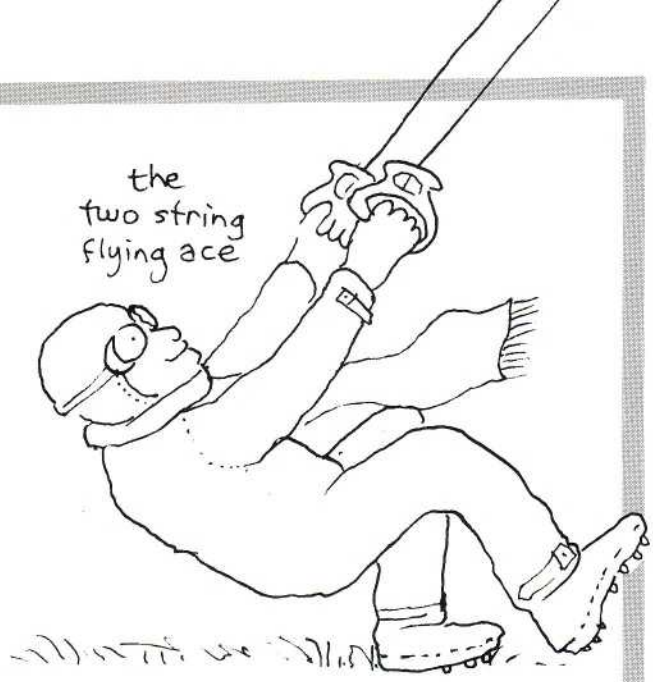

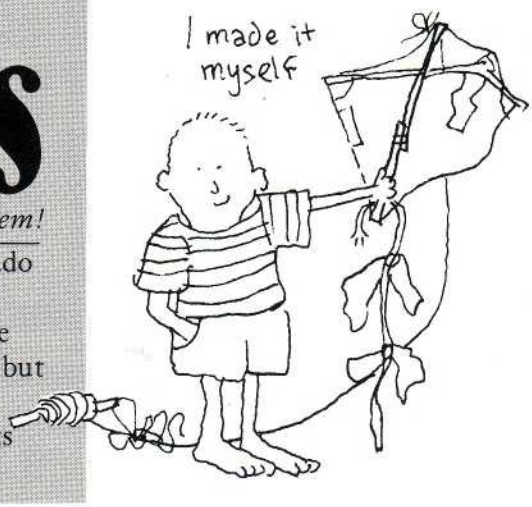

What Is Best of Show?

This *Kite Lines* series features a reader's kite picture on a whole page in *full color* in each issue. Yours could be the next one! What kind of kite photograph qualifies for this honor?

- First, the kite must fly well. Supporting information must be included describing your kite's typical flight and giving its dimensions, materials and history (in brief).
- Second, the kite must be beautiful. Agreed, beauty is in the sky of the beholder. This is an openly subjective criterion.
- Third, the kite must show some quality of originality in either form, craftsmanship, color, decoration or use of attached elements (not including reels).
- Fourth, the photograph (as a separate consideration from the kite in it) must be of high artistic and technical quality—sharp, well-framed, rich in color. For printing, we prefer 35mm or larger transparencies. We can also use color prints if they are 8x10" or larger. Tip: we favor vertical format over horizontal.

The photograph should be taken in one of two modes: as a close-up of your kite in the sky, the kite filling at least one-third of the film area; or as a background-inclusive shot, showing people, scenery, etc., behind the kite. In any case, the kite should be shown well, although not necessarily flying, as long as your supporting information establishes the kite's flyability. In fact, background features give a reference point and sometimes increased interest to a picture.

We suggest you take many pictures of your kite. Snap it in the sky, at festivals, morning, noon and night—even indoors on display. Discard any preconceptions of what a "correct" kite photograph should be. Then send us no more than *five* photographs of *one* kite at a time. To avoid risk of sending an original transparency, you may send a duplicate slide for review.

Ship in stiff protective packaging and enclose a self-addressed envelope with stamps or international reply coupons for return of your photos—otherwise we cannot guarantee their return.

Pictures used must be not previously published. After publication in *Kite Lines*, further rights revert to the photographer and kitemaker.

Kite Lines credits both kitemakers and photographers. A photographer may take pictures of a kite not his or her own, but in such case should ask the kitemaker's help in supplying information for the submission. *You* are invited to enter! You have nothing to lose but your obscurity.

Best of Show

Kite by Brooks Leffler & Jon Burkhardt

Photograph by D. Q. Williams, Jr.

Number Four in a Series

Jon Burkhardt writes:

Here is a real collaborative effort between two kitemakers and a photographer. I particularly enjoy this photo because it captures a very special moment and, in doing so, expresses some of the great joys associated with kites.

The kite was built by Brooks Leffler, who created the basic structure, and Jon Burkhardt, who created the graphics design. The photographer, D. Q. (Willy) Williams, recorded the first time that anyone—the creators included—had ever seen this kite assembled. In the scene, we're so obviously *delighted* with our new creation: we look like a couple of kids on Christmas morning as we bounce down the field for the very first flight. We didn't even know that a photographer was there (at the 1983 Smithsonian Kite Festival in Washington, DC), but he got it all—the happiness, the friendship, the sunshine, the great outdoors. And the kite.

It is a large-scale version of a Brooxes Boxes rhomboid, based on the refined original design by Robert S. Price (who is visible far left in the photo). The kite is seven feet tall and wide and 3½ feet deep. The spreaders are ½-inch diameter fiberglass painted black and seated in copper plumbing tees which are epoxied to the spars. The kite is collapsible to a 3½-foot x 8-inch package. The ¾-ounce ripstop nylon skin is appliqued with smaller pieces of ripstop designed to give an impression of stained glass. Fountains and fireworks were the primary inspiration for the patterns.

The picture shows the back side of the kite. The side that faces the flier is solid black, so that the "stained glass" plays peekaboo through the throat of the kite as the wind shifts its angle. Not all observers appreciate this subtlety, and some suggest that the kite be bridled on the opposite side so the designs would always be in full view. We did it the other way intentionally, but the bridling could be changed.

The kite has won awards for its beauty and aerodynamics at several festivals and has been flown in Scheveningen (The Netherlands) and Singapore. It flies in winds of 8 mph and up, roaring into the sky and flying at a high angle. While it is possible to change the cross spars and thus lower the aspect ratio of the kite for higher winds, we've yet to test the upper limits of its wind range because the kite develops a fearsome pull in winds over 20 mph. It survived a two-day battle with a voracious oak at the AKA convention with very little damage (thanks particularly to Terry Nichols and his brother).

What the kite really needs now is a good name; the current appellation is the *B-7*: Brooxes Bigger Better Blacker Burkhardt-Bedecked Box! ♢

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