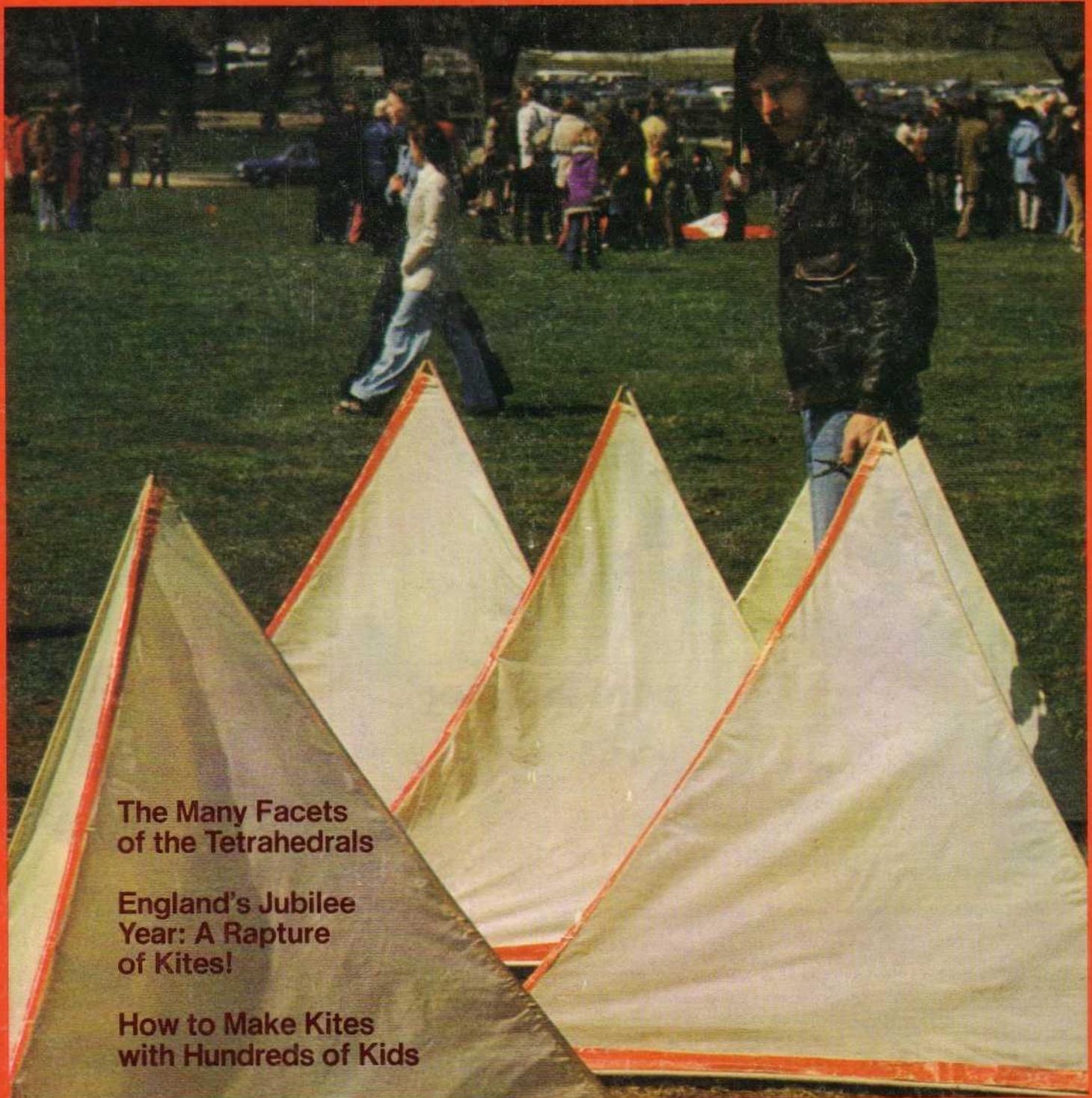


KiteLines

\$ 1.50
WINTER 1977-78



quarterly journal of the American Kitefliers Association

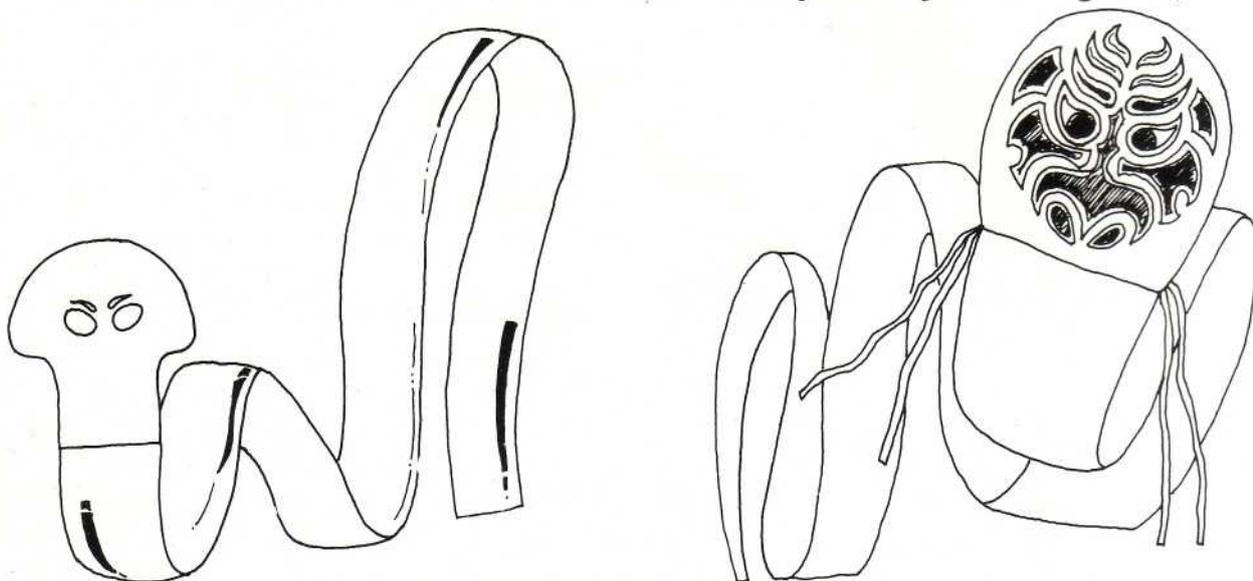


**The Many Facets
of the Tetrahedrals**

**England's Jubilee
Year: A Rapture
of Kites!**

**How to Make Kites
with Hundreds of Kids**

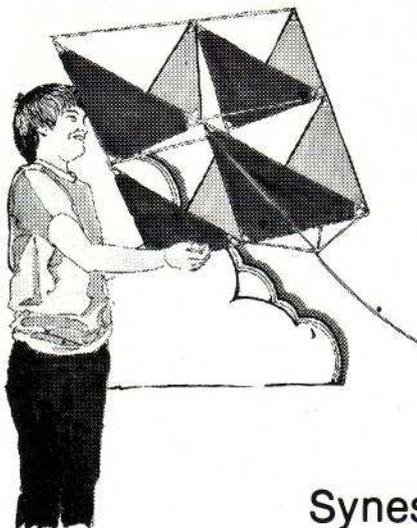
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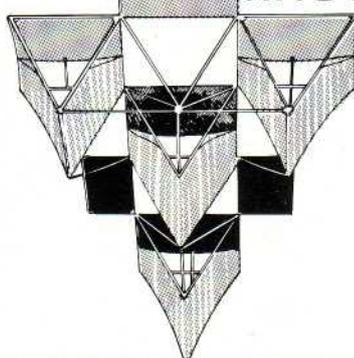
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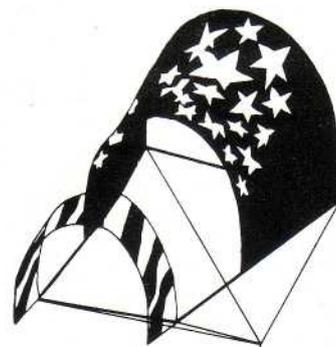
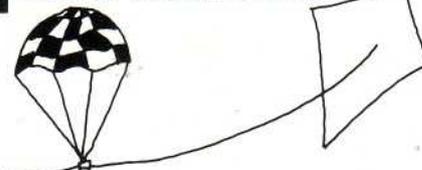
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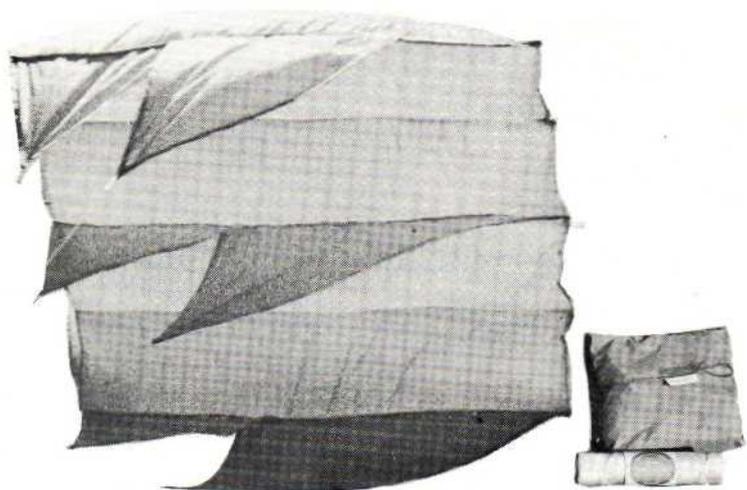
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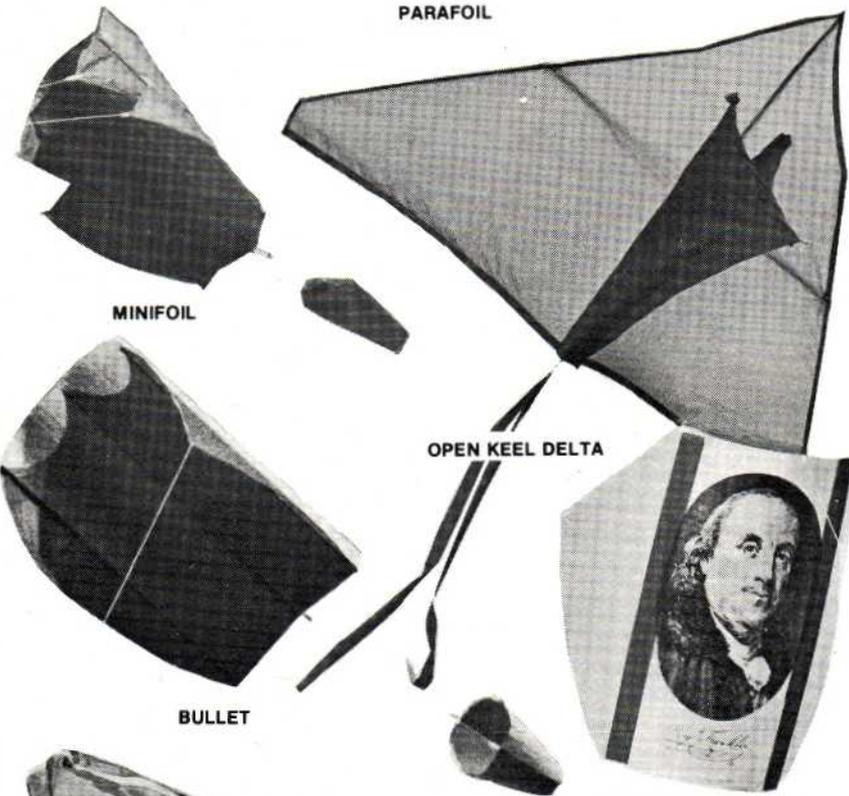


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BULLET

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The American Kitefliers Association is a world-
wide organization devoted to the advancement
of kitemyng. Its quarterly magazine, *Kite Lines*,
is published by Verve Enterprises, Inc., for AKA,
with editorial and business office at 7106 Camp-
field Road, Baltimore, Maryland 21207, USA,
telephone: (301) 484-6287. This journal is on
file in the libraries of the National Air and
Space Museum, Smithsonian; the National
Geographic; the National Oceanic and
Atmospheric Sciences Administration; and the
University of Notre Dame Library's Sports and
Games Research Collection.

Founder: Robert M. Ingraham
Publisher-Editor: Valerie Govig
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Typography: Head Composition
Printing: Collins Lithographing and Printing Co.

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and international.

Memberships and subscriptions: One year (4 issues),
\$6; two years (8 issues), \$11; three years (12
issues), \$15. Subscription rates include member-
ship in AKA at no additional cost. Single copies
@ \$1.50 are available from the publisher or fine
kite shops throughout the U.S. Postage outside
U.S., \$1 per year additional. Special air mail
rate for foreign mailings, \$5 per year additional.
Subscriptions always begin with the next issue,
unless current issue is specified. Back issues are
available for \$2 (\$2.50 outside U.S.).

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Closing Dates for advertising, articles and news
are Jan. 1 for Spring, Apr. 1 for Summer, July 1
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Postmaster: Second class postage paid at Balti-
more, Maryland. If undeliverable, please send
address change Form 3579 to *Kite Lines*, 7106
Campfield Road, Baltimore, MD 21207.

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Cover

Carl Douglass Jewell prepares his tetrahedral kite for a day of
glory at the Smithsonian Kite Carnival in Washington, DC.
Doug's assembly system makes possible a variety of cell
arrangements as well as easy transport.
Photograph by Anneke Davis. (Story on page 23.)

TOP OF THE LINE



#300 THE OAK SPOOL

IDEAL FOR MEDIUM TO
LIGHTWEIGHT KITES

MADE WITH THREE INCH OAK DISCS

TWO INCH TUBULAR CORE
FOR RAPID REWINDING

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FOUR INCH OAK DISCS
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Letter from the Editor

What are kitefliers really like? When asked that question I have had to generalize from personal experience. Now I have some more tangible information, that which you, dear readers, supplied in the survey which appeared in the Summer issue. It's my pleasure now to share it with you.

By your own self-appraisals, 49% of *Kite Lines* readers are intermediate in kiteflying skill, while 29% of you are advanced. Novices account for 20% and only 1% are willing to be classified as spectators only.

You *do* fly kites! In warmer months, the mode (27%) is a frequency of twice a month, 24% of you fly once a week, and a solid 21% fly two or three times a week. Only 19% fly once a month or less, and an energetic 7% fly four or more times a week. The enthusiasm abates in the colder months, though even then 21% of you fly once a week or oftener. And you've been kiteflying like this for quite some time: two to three years, 25%; three to five years, 19%; five to 10 years, 15%; 10 to 20 years, 11%; and a whopping 20% have been flying over 20 years.

In all this time only 12.6% of you have had injuries from kiting. By far the commonest type is line burn (57% of the injuries.) A few (about 29%) of the accidents have been relatively severe (some sprains and broken bones, mostly associated with *running*), but given the time spent and frequency of flying, the risk appears low, at least among our well-educated members.

Kiteflying vacations, specifically planned for kiteflying purposes, are taken by nearly half of you (44%) each year. You generally travel by automobile on these trips, and 11% of you travel as far as 500 miles.

It appears that the flier who buys his or her kites and the flier who makes them are often one and the same. This finding puts the lie to the notion that these types of kites are mutually exclusive. Only 12% of *Kite Lines* readers purchase no kites in a typical year, and all the rest buy at least one or two each year. Twelve percent go for 10 or more models a year and 4% of these buy over 20 kites a year. The bulk of the purchases are in the \$5 to \$9.99 range, though all price categories

in the survey registered substantial followings *except* for kites under \$1 or over \$30. Last year, however, you kites must have been more spendthrift than usual; only 2% of you bought no kites last year, and another 2% of you paid over \$30 for a kite.

Also a big part of your buying goes into kite accessories (such things as line, reels, special clothing, carrying bags, tails, swivel hooks, drops, banners, etc.). The favorite spending level here, 29%, was \$20 to \$49 last year. Major purchases (costing \$20 or more) made specifically for kiting were also common. In the last three years 50% of our members purchased at least one such item and 23% bought three or more.

Construction of kites occupies all but 22% of the people who answered the survey, and a prodigious percentage (24%) made more than 10 kites last year, using books, original designs and *Kite Lines* (or *Kite Tales*) as sources for plans, in that order.

Our opinionated audience definitely votes for May as its favorite month for kiteflying, nationwide. Ranking of the other months is as follows (in order from favored to unfavored): June, April, September, July, October, March, August, November, February, December and January. The question of a national kite celebraton brought us quite a bit of indifference, with 10% giving no response and 9% voicing objections to the idea. The remaining replies expressed their preferences thus: 43% for a National Kite Week; 25% for a National Kite Day; 13% for a National Kite Month.

Our average kiter is well-read, too, and typically has three to six kite books in his or her library. Over 75% of readers had purchased anywhere from one to 20 books on kites in the last year. Where *Kite Lines* is concerned, you seem to have overwhelming avidness: 72% of you read the journal cover to cover; 20% read most of every issue; and only 7% read *Kite Lines* less thoroughly. In addition, 88% save all of your past issues, and consult them often or at least sometimes (also 88%). Most of you are not loners in your enthusiasm; 64% of you report that other people read your copies, and

in over half of these cases two or more people do so—effectively increasing our magazine's readership by 133%. Most of these pick-up readers are the same age as the members; only 10% are children. You read the advertising, too—62% read all the display ads (not a single person read none of them), and 45% read all the Classified ads too. In the last year, 44% of readers ordered a kite product from the magazine.

When not reading *Kite Lines*, you may be found indulging your catholic tastes in such other magazines as *National Geographic* (18%), *Popular Science* (16%), or *Time* (16%). But the preponderance of magazines read was a fascinating range of special interest publications—from *Bicycling*, *Organic Gardening*, *American Rifleman*, *Car and Driver*, *Popular Photography*, *Tennis* and *Model Airplane News* to the less predictable *Sky and Telescope*, *Backpacking*, *Byte*, *Fibre Arts*, *Ballooning*, *Beecraft*, *Fly Fisher's Journal*, *Table Tennis Topics* and *Mini Micro Systems*, to name only a few.

Our question 31 in the survey, asking you to rank the types of articles in *Kite Lines* that interest you most, evidently caused a lot of agonizing. In fact, 10% of you wouldn't reply to this question. But those who did showed they strongly favored construction plans and tips and the Design Workshop department over the others, with trends, the What's New section and national news coming in with high marks, and kite puzzles, fiction and poetry falling to the bottom of the list.

Some of our questions related to AKA as an organization in hopes of gauging the level of interest that could be developed there. Those willing to attend a local or regional meeting came in at 75%, and an impressive 12% were willing to attend a national meeting, at their own expense. Those willing to undertake an AKA job as officer, committee person, representative or correspondent numbered 62% of the responses.

Ever wonder about the composition of our membership? The "typical" (mode) kiteflier emerging from our survey is a male in his 30's, married,

Continued on page 10...

NEW LIFE MEMBERS

Anonymous
Joseph Arena
Charles Bernstein
Dr. Myron Bernstein
William R. Bigge
Lt. Col. and Mrs.
Bevan H. Brown
Wyatt Brummitt
Dr. Floyd Cornelison, Jr.
Elliott N. Couden
Thomas E. Cows
Wood and Virginia Ellis
Dale Fleener
Pat York Gilgallon
Paul Scot Gilgallon
Pat Hammond
Edward Hanrahan
Hugh A. Harrison
Al and Betty Hartig
John Hastings
Robert Hieronimus
Gary Hinze
A. Pete Ianuzzi
Robert and Hazel Ingraham
Bill Jones
Nat Kobitz
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Ted Manekin
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Lt. Raymond Reel
Francis M. Rogallo
Gordon Shute
Charles Siple
Robert Smith
H. J. (Hod) Taylor
William E. Temple
Dr. Alfred Thelin
Thomas Troyer
Arthur Vash
Mike Wright
Harold Writer
Will Yolen
Anthony Ziegler

Letters

SLED QUESTIONS FILL THE AIR

I have an interesting phenomenon that I am at a loss to explain.

Over the years I have built many sleds but have settled on the two-stick ventless variant of the Scott-Grauel type with a bridle point at 28.5% down. Recently I got some lovely .005 inch polyethylene and proceeded to produce six identical sleds of a configuration that I had been building for years (900mm or 3-foot sleds), but they bucked like a lovesick mustang and performed like Nadia Comaneci: cart-wheels, rolls, head stands, no-handed round-offs, but like the said Nadia all on the ground.

I repeated the design in .002 plastic and things improved vastly, so back to the building board and out with .0005 plastic. Very flimsy but ultra-stable. Not even a speed wobble as they climb to their 70-degrees-plus angle. Pretty to watch and very simple to fly. All kites are identical as each time I made six, used 5x900mm dowel from the same bundle and used the same masking tape, polyfilament line and the same template.

The pernicious problem is: Why do my sleds lose stability as the plastic (polyethylene) gets thicker? Why? I need elucidation from someone, as I have 10,000-plus .002-inch covers all nicely printed and the kites need substantial tails to slow them down and get stability. The .002-inch covers get a wobble on and oscillate from side to side with an increasing oscillation until they start diving, looping and generally not flying at all well. If someone can help, please write to me. All correspondence answered in English.

Logan Fow

62 Paul Crescent
Hamilton, New Zealand

KITING AT NIGHT

I am a qualified, "dyed-in-the-wool," experienced, ropy-popsy and in fact—a good kiteflier. In fact, at this moment I am experimenting with *night* kiteflying. It is very interesting and exciting.

At a thousand feet you will not see your kite, but keep your eye and your feel on the string—loads of fun!

Ermete Zacconi (age 71)
White Plans, NY

HIGHER EDUCATION

While we in Rockland County maintain a rather low profile in regard to publicity, many outstanding technological advancements have evolved from this rather rustic setting.

Most noteworthy is the Manta Ray Space Vehicle (U.S. Patent 3,796,399). I have

enclosed a description of courses which I have offered for the past ten semesters and a recent letter to the editor of the *Journal-News* of Rockland County.

Harold R. Wechsler
Monsey, NY

Rockland Community College
CF 232: KITES—THEIR THEORY, CONSTRUCTION AND FLIGHT (For Adults and Children)

This course will begin with a discussion of the history, nature and types of kites which have been utilized around the world. Included will be lectures on aerodynamics and the scientific uses of kites. Schematic drawings for the construction of kites will be distributed, and class members will build kites under supervision. Half of the sessions will be devoted to the flying of kites which the students have built.

This course is intended for individuals involved in education, youth activities, service organizations and environmental awareness programs. Family groups may enroll, but full participation is required. Children will be admitted only when accompanied by a parent or other adult. Curricula for the organizational dissemination of kiting knowledge will be discussed and special attention will be given to persons involved in such programs.

Instructor: Harold R. Wechsler, Master Airship Builder and Designer, USA, is a world champion kiteflier and has been the recipient of numerous awards for design and development. Holders of several patents for Space Age design, he is the author of many articles and technical papers. His latest work, "Welcome to the Wonderful World of Kite Flying" has been widely acclaimed. Long an active proponent of safety in flight, he is recognized as America's foremost kite designer.

Seven sessions on Saturdays, beginning March 5, from 9:00 to 11:00 a.m. This course is offered as a community service and there is no fee.

CF 233: ADVANCED KITE CONSTRUCTION

This course is being offered only for individuals who have completed "Kites—Their Theory, Construction and Flight," and is intended as an introduction to Space Age Design. Fabrication of the French Military Box Kite and Delta Wing configurations will be undertaken.

A working knowledge of sewing machine operations is required as all models will be fabricated in cloth.

Instructor: Harold R. Wechsler.

Three construction sessions on Saturdays, beginning March 5, from 11:30 a.m. to 1:30 p.m.; two flying sessions on subsequent Saturdays, 9:00 to 11:00 a.m. This course is offered as a community service and there is no fee.

Letter to the Editor,
Journal-News of Rockland County

This letter is in response to recent criticism of the course in kite construction and flying offered by Rockland Community College appearing in the media.

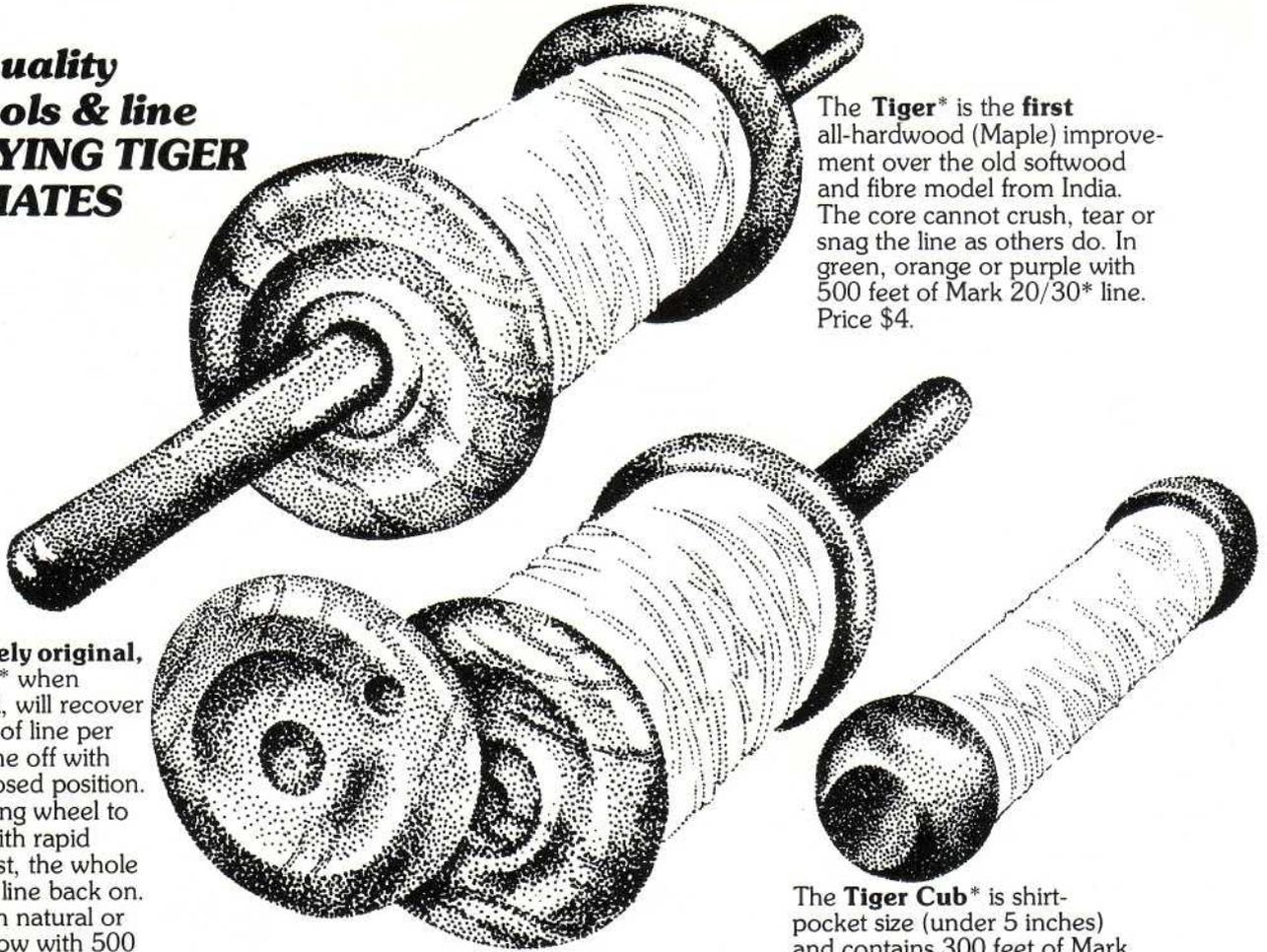
A number of years ago I enrolled myself and my family in the course in "Kite Construction and Flying," though with reservations as to just what could be taught in that area. I soon realized that Harold Wechsler, the teacher of the class, was what I can only describe as a genius in his field, which encompasses far more than the building and flying of kites (in addition to being a man of rare charm and wit). I'm sure Wechsler would be the last to contradict me.

He has invented and developed a number of different kites and provides his class with schematic plans for constructing them. He works closely with his students, teaching them methods of construction which, if followed meticulously, produce

Continued on page 13...

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

**Finest quality
kite spools & line
from FLYING TIGER
ASSOCIATES**



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

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

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

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

any kite from mylar fighters to all dragons and most box kites.

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FLYING TIGER ASSOCIATES

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*Trade Mark of Flying Tiger Associates



Valerie and Mel Govig out kiteflying on a fine fall day.

Anneke Davis

scientific people (3%), data processors (3%), writers (2%), and photographers, artists and craftspeople (6%).

Creating the survey added a lot of extra work for many people, not only in the added editing and printing, but in tabulating the results. We had hoped to do the work in one full day, but it took two, on two different weekends, plus additional individual time in between and afterwards. It was no small task going through 467 responses to each of the 47 questions. Special thanks are owed to the local members of the Editorial Advisory Panel and other friends of AKA who helped: Bill Bigge, Pete Ianuzzi, Rick and Harriett Kinnaird, Curt Marshall, Bernie and Bobbie Spalding, my husband Mel, and especially the Robert S. Prices, whose home was the scene of this undertaking and whose enthusiastic hospitality made everything more than endurable.

We who worked on the survey are well aware that a computer could have done the job more quickly and better, pulling out cross-references in the data that our manual routines had to leave untouched. Nevertheless, we are grateful to have in hand at least the

basic results, and we owe very much to those who spent hours getting them. Imperfect as the survey was, it represents a good first effort, the first of its kind, to collect statistics on kitefliers. This letter gives only a partial review of the major information collected; a full accounting of every question is available from AKA as a separate paper and may be obtained for a stamped, self-addressed business-size envelope.

The green survey sheets continue to come in, past the deadline but still a helpful channel for feedback and a stimulus to all of us.

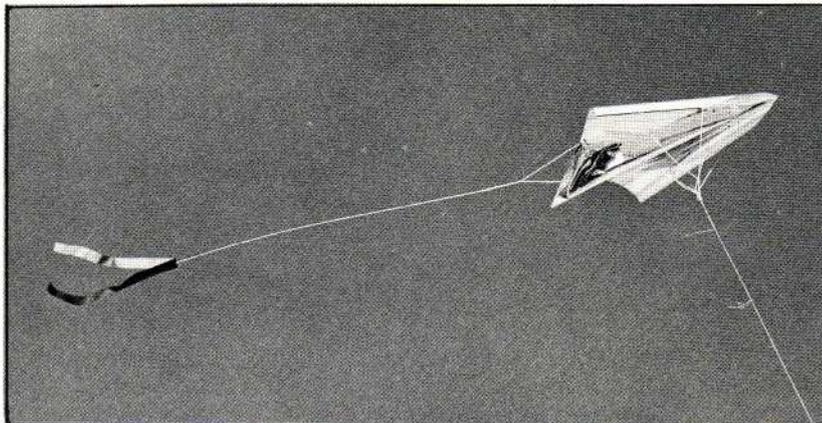
The biggest thank-you of all I've saved for last—to all of you who made the survey possible, by answering it. Not only did you fill out the form, you added comments at the end that were thoughtful, helpful and rewarding to read. I'm enjoying getting to know you.

Windily yours,

LETTER FROM THE EDITOR

... Continued from page 8

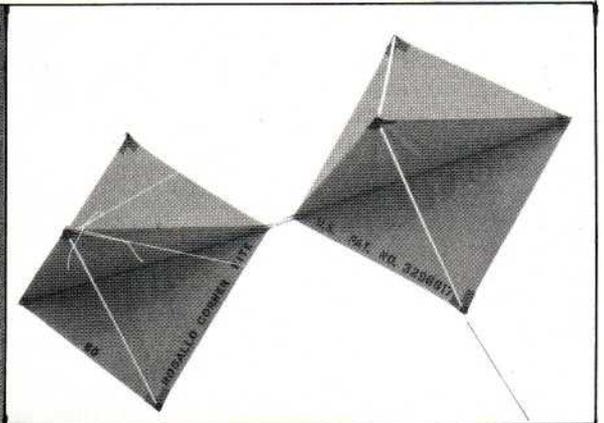
childless, with a college background, living in a major metropolitan area, enjoying a household income of a little over \$20,000 annually and employed in a skilled or technical job, or as a professional (engineer, teacher or doctor) or in business management. Two percent of respondents were in a kite-related business. *Kite Lines* and kiting as a sport seem to attract many



Two Originals Designed by Francis M. Rogallo:

● ROGALLO FLEXIKITE

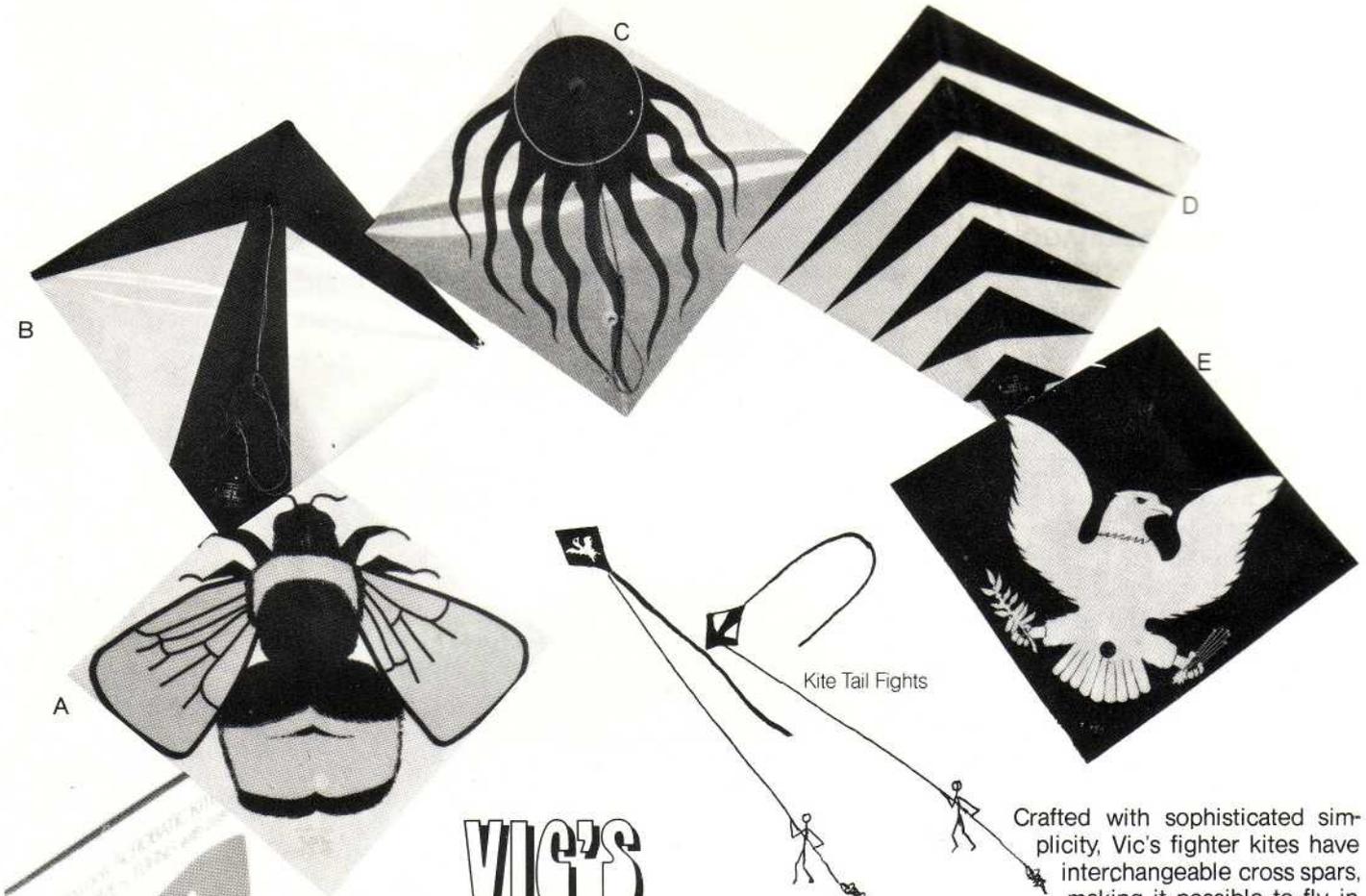
The Flexikite embodies the same aerodynamic principles as the delta wing hang glider. A 15-inch square "silver" Mylar® kite (22-inch keel length) which you can fly on one line in normal fashion—or maneuver aerobically like an airplane, on two lines, making loops, figure 8's, dives, landings and take-offs. Comes complete with flight instructions and 55 yards of nylon line. Choose as a kit with instructions for easy assembly, **\$5 ppd.** Or have the assembled kite, ready to fly, **\$6 ppd.**



● ROGALLO CORNER KITE

The Corner Kite was originally designed by Rogallo as a radar reflector. Arresting in the air, yet very easy to fly. Easy to assemble, ready to fly in minutes. After flight, it breaks down to fit into its own drawstring bag only 25 inches long (1½ inches diam.)—easily stored almost anywhere. Assembled, kite measures 5½ feet in length, with over 14 square feet of sail area. Covered in red nylon. Each kite is handmade, test flown and serially numbered. U.S. Patent No.: 3,296,617. **\$30 ppd.**

Order from: **ROGALLO FLEXIKITES, KITTY HAWK, NC 27949**



VIC'S

FIGHTER KITES

first in single-line maneuverability

The kite that makes it all easy. For fliers age 7 to 70, male or female. Do spectacular aerial maneuvers, with or without a long tail. Or just fly it steady. Have tail-cutting fights or kite-to-kite fights (*i.e.*, without tails). No crash traumas with Vic's—they're made of tough, durable Mylar.[®]

Crafted with sophisticated simplicity, Vic's fighter kites have interchangeable cross spars, making it possible to fly in *light, medium or heavy* winds. An adjustable bridle changes the kite's response, for contests or easy flying. Brilliantly decorated in 5 dramatic designs. Or choose your Vic's in clear Mylar (not shown) and paint your own design!

Kite comes ready to fly with 70 yards of flying line and complete instructions. An excellent gift idea, it's packaged in a glossy colored tube so no gift wrapping is needed. The tube is also convenient for storage of your Vic's, or transporting it to the flying field.

- A. Bee, \$6.50
- B. Arrow, \$6.00
- C. Fireball, \$6.50
- D. Fishbone, \$6.00
- E. Eagle, \$6.00
- F. Clear, (not shown—
to paint your own!), \$6.00

COLORS: red, blue, green, yellow or black for all designs except Fireball (red/yellow on white) and Bee (black/orange/clear only).

Dealer inquiries invited

—Clip and send today—

International Kite Company
P. O. Box 3248
San Diego, CA 92103
(714) 239-1992

Dear Vic: Please send me the following Vic's Fighter Kite(s).
(I am indicating my second color choices where applicable.)

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|-------|-------|-----------|--------|-------|-------|-----------|--------|
| | | | | | | | |
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I enclose a check or money order for \$_____
(California residents add state sales tax.)

Name _____

Address _____

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Kites Past: Historic Notes

A "NEW" MEDIEVAL DRAGON

By Clive Hart

Professor of Literature, University of Essex, England

Readers of *Kites: An Historical Survey* and my later book, *The Dream of Flight*, will know what a puzzle is presented by the so-called "semi-kites" or "windsock kites" which turn up in a number of medieval manuscripts concerned with military equipment.

For a long while historians of aviation thought that the dragon shaped monsters, which the copyists often drew in highly realistic, three-dimensional form, represented cloth windsocks which rose by a combination of aerodynamic lift, produced by a kite-like function of some parts of the dragon, and aerostatic lift, produced by a burning torch placed in the open mouth. The theory was plausible enough: some of the dragons were shown with wings, which could have contributed a reasonable amount of aerodynamic lift, and Asian invaders had introduced a military banner consisting of a cloth windsock attached behind a carved wooden head from the mouth of which smoke and flame poured out to frighten the enemy.

According to the theory, someone noticed that the fire-producing materials in the old windsock banners (which were attached to poles, like any other flags) tended to lift the flexible part, on the principle of the hot-air balloon. Being of an inventive turn of mind, he freed a windsock banner from its pole, tied it to a kite line, and found that it would fly. Although the materials available at the time (early 15th century) would not have allowed sufficient lift to be produced by hot air alone, the number of occasions on which wings appear in the illustrations suggested to some historians that the answer lay in the combination of hot air and ordinary kite lift.

The illustration reproduced here, which I had not come across when I wrote *The Dream of Flight*, appears to support the theory. The windsock is breathing fire, has no wings, and is flying freely above the horseman. I have nevertheless always been suspicious of the hot-air theory, as applied



Dragon kite from a manuscript in the Municipal and University Library, Frankfurt on Main, Germany. Mid 15th century.

to these dragons, and I believe that if the creature ever had any basis in fact, it was probably a simple plane surface kite which the horseman towed behind him to bolster his courage. But the manuscript copyist had other things in mind as he drew and embellished the kite, and I believe that the reason for the three dimensional drawing and for the fire coming from the mouth may have something to do not only with the old fire-breathing banner but also with a more recent medieval invention, the rocket-propelled bird or dragon which appears in some other manuscripts and which was retrieved by a static line after it had been fired. (The rocket dragon was intended to be used to measure distances, or to create terror, or both.)

One of the most interesting features of the illustration concerns the reel. All other reels in medieval drawings of dragon kites show a simple cranked rod which, although serviceable, is awkward and impractical. The horseman here is holding a reel which is probably more like the genuine article as used in the Middle Ages than any of the others illustrated in *The Dream of Flight*.

This is the only other medieval dragon kite I have come across to add to those shown in *The Dream of Flight*. I hope one day to be able to publish a comprehensive catalog of medieval kites and should therefore be grateful to hear from readers who have seen any that I may have missed. ◇

© Clive Hart 1977

Letters

... Continued from page 8

kites of extraordinary capability and longevity. I have several that still fly after four years.

The later classes are devoted to the actual flying of the kites, and critics of the program would find themselves involved in a surprisingly satisfying sport if they took advantage of the opportunity to do so. As with any esthetic experience, it can only be appreciated by doing it.

In regard to the amount of tax money being spent on the program, all supplies are provided by the students of the class, except for certain hard-to-obtain items that Wechsler provides himself. Critics should also know that, at least four years ago, Wechsler did not receive a fee for his time and seemingly inexhaustible expertise. (Artists are still rarely recognized in their own land.)

RCC should be congratulated for having the imagination to provide a program such as this as a community service, and I would like to suggest that this is a field of endeavor that benefits area residents far out of proportion to the few dollars spent to inform Rockland residents of its existence, and to provide the space necessary for the class to be held.

Come fly a kite!

H. Ohnsman
Monsey, NY

ROTOR KITE HISTORY A PLEA FOR HELP

Perhaps AKA oldtimers and newcomers can help me with some detective work—a quest for historic documentation.

The *rotor kite*, a distinctive generic type, deserves a carefully researched, hard-documented history of its evolution and of the personalities who were involved.

Although I have been an intermittent designer and flier of rotor kites upwards of thirty years, I confess that I have meager knowledge of their background.

Contrary to the flattering opinions of a misinformed few, I am not the inventor of the horizontal-axis rotor kite! I can only enjoy the satisfaction of having evolved a simple, efficient, thick, asymmetric, demi-cylinder airfoil: Aydlett No. 290-A. (No. 290-A inspired Capt. Hornbeam Thatch to evolve, in turn, his curvier airfoil: Hornbeam No. 05-4027.)

If through my own researches and with the help of others I can compile sufficient material, I plan to publish the rotor kite story as comprehensively as can be managed.

Especially needed are: photographs; references to or copies of accounts in publications that are almost certain to reach back more than fifty years; names of experimenters, individual or commercial; names of firms or individuals who marketed rotor kites prior to 1967, whether still extant—or defunct (I am

especially interested in the Rotoki Corporation); in fact, *any* bits or pieces that may conceivably help to fill the voids that exist in the kite's historic jigsaw puzzle.

Please help me.

It goes without saying that I'd be most pleased to gratefully and publicly acknowledge useful contributions and data that may be given or loaned to me by cooperative AKA members, kitefliers, and *Kite Lines* readers.

Wouldn't it be a real achievement to establish who was the first person to fly a rotor kite?

His or her name deserves to be included prominently in the Legion of Great Names in kiterly!

Guy D. Aydlett
P.O. Box 7304
Charlottesville, VA 22906

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

CORRECTIONS

As we go to press, about 16 members have written to say they received a misbound copy of the Fall 1977 *Kite Lines*. All of those who wrote were immediately sent a correct copy.

We have, of course, screamed properly at our printer, who has, of course, apologized meekly and is reimbursing our added expense. "This has happened in our plant only once in 15 years," he says. We hope so.

What we are concerned about now, though, is the chance that others of you may have received misbound copies, too, but you just haven't bothered to complain. If so, please do, because we cannot possibly guess who you are.

Stormy Weathers writes to alert readers of his article on kite fishing in the Fall 1977 Kite Lines:

On page 26, the column heads on the dimensions are interchanged. Readers who built a Pelican kite from the dimensions given actually built a Bigmouth kite, and *vice versa*. For those who set out to build a six-inch fishing kite, this is a lucky error, for a six-inch Bigmouth flies a heck of a lot better than a six-inch Pelican. To build a fishing kite larger than two feet, use the right-hand set of dimensions.

Our Spanish-speaking readers have pointed out that All Saints' Day in Spanish is spelled *Todos Santos* (not *Toto Santos*, as in the Fall 1977 article on Guatemala's village kites). Our incorrect name was drawn from a college alumni publication article and was not the fault of the author, Hall Hammond.

HOW MANY LINES

DO KITES GET—IN THE PRESS?

Members who like to read about kites in other publications as well as in *Kite Lines* will have two opportunities to do so soon.

Scientific American for February 1978 will publish an extensive article on basic kites and kite making well written by Jearl Walker, the new editor of the Amateur Scientist department.

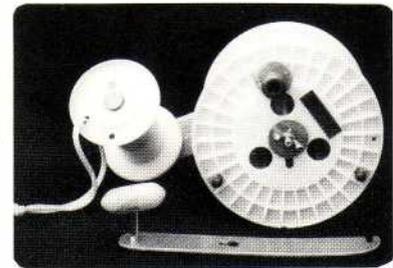
Southern Living, a popular leisure magazine of the South with about five million readers, will feature regional kite festivals in its March 1978 issue.

Both publications will mention AKA and *Kite Lines*.



**THE
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MULTI-WINCH NO. 7

This most versatile reel has all the features and great line handling of our Mono-winch No. 6D (see our ad on page 36), plus an even sturdier spool and an auxiliary crank that gives a 2:1 mechanical advantage over the kite. The slip-on crank also slips easily into your pocket when the regular winding knob is used. One gentleman even used a Multi-winch No. 7 to haul in a 60-kite train, but *that* is over-stressing things a bit.

Price: **\$24.50**
postpaid in the U.S.A.

Order Multi-winch™ No. 7 from:
W.O. Weathers & Sons
17707 S.E. Howard St.
Milwaukie, Oregon 97222

Design Workshop

STACKED DELTAS

By Neil Thorburn

Whether the Marconi-rigged kite actually gets added performance from its overlapping jib and Venturi slot is questionable. However, there is no denying that it is a spectacular looking creation. This is especially true of the Four-Masted Schooner by Arthur Kurle.*

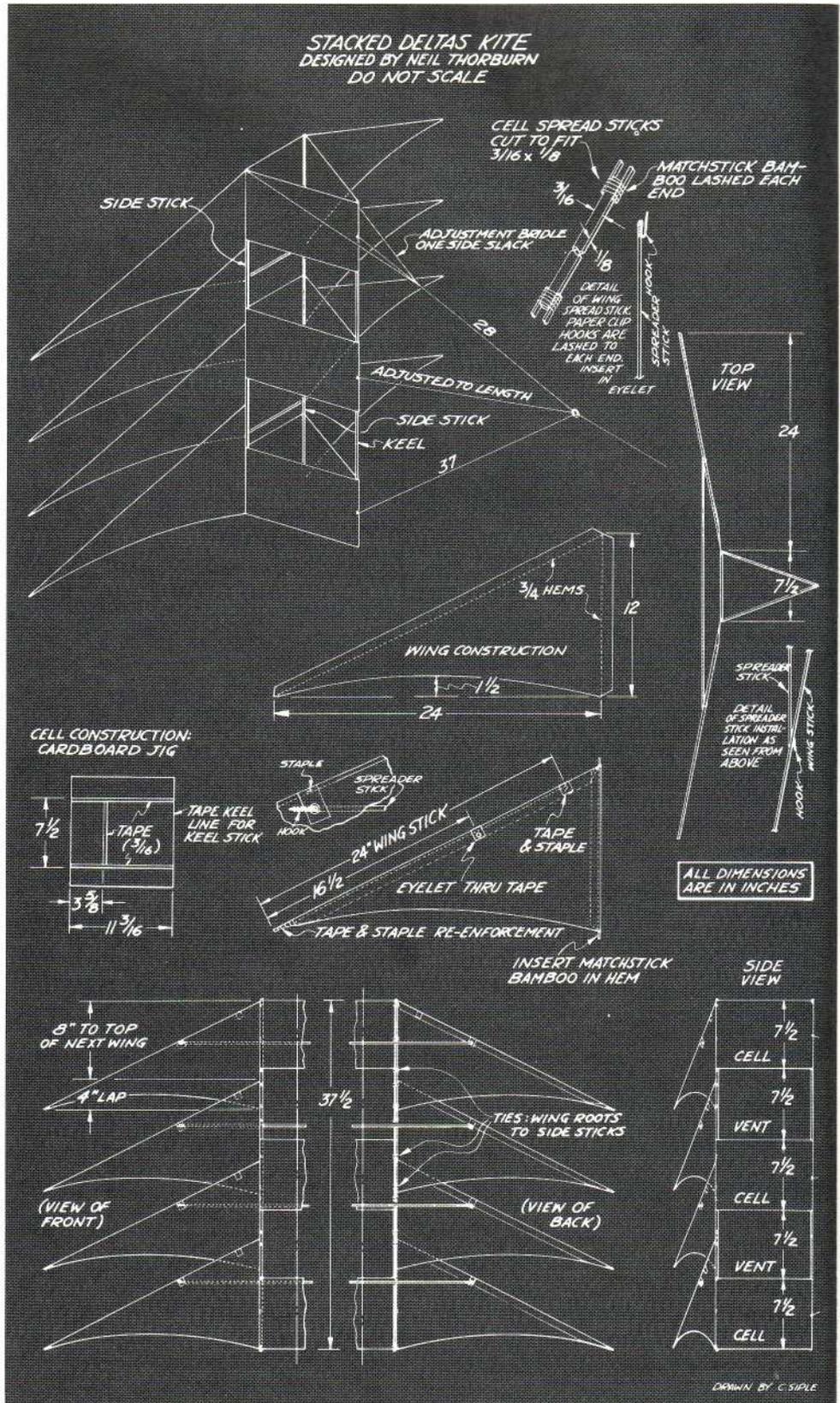
It can also be said that the construction is rather complicated. One might hesitate to risk so much labor, time and material in real gung-ho kite building for fear of loss or damage.

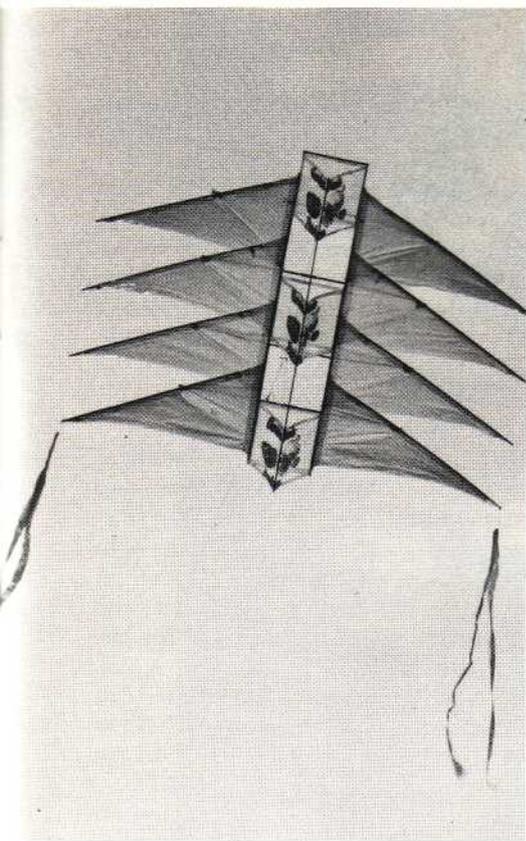
Stacked Deltas is an attempt to create the appearance of the Schooner without the complexities in construction. I decided on a three-cell box of this size to limit the wing spread so the spreaders could remain light. Food storage bags in Mrs. Thorburn's kitchen seemed a reasonable size for the cells, though the design should lend itself very well to other coverings, such as rip-stop nylon. An aspect ratio of two to one looked pretty rakish in my drawing, and I came up with nice even measurements of 12 and 24 inches. I think this kite also has its own Venturi effect, though I haven't been able to test it in a wind tunnel. In ordinary flying, though, it is good in both light and strong winds, flies at a high angle while keeping the string taut, and shows no annoying idiosyncracies in flight.

MATERIALS

- Wing covering: 24x30" white plastic kitchen trash bags.
- Cell coverings: 11" plastic food bags, such as Baggies or Glad Bags. (The trash bag plastic could be used but would have to be seamed.)
- Sticks, $\frac{3}{16}$ x $\frac{3}{16}$ " spruce, pine or other straight grain wood. Cut 8 pieces 24" long for wings; 3 pieces 37 $\frac{1}{2}$ " long for framing of the triangular cells (2 sides and keel); and 2 pieces about 7 $\frac{1}{2}$ " long for cell spreader sticks (cut to fit tightly after kite is built).
- Wing spreader sticks, slightly heavier, $\frac{3}{16}$ x $\frac{1}{4}$ " wood or garden stake bamboo, each 27" long.

*Lee Scott Newman and Jay Hartley Newman, *Kite Craft* (New York: Crown, 1974), pp. 187-188.





Theodore L. Manekin

- Matchstick bamboo: 8 pieces 13" long for wing hem inserts, and 8 small 1" pieces to be lashed onto the cell spreader sticks.

- Miscellaneous: strapping tape, staples, drapery hooks, needle and thread, felt tip markers and tail material.

INSTRUCTIONS

1. Cut the wings one set at a time from the folded bags and hem as shown using tape or a heat-sealing method.
2. Staple the wing sticks through the tape patches after they have been inserted in the hems.
3. Slip a piece of matchstick bamboo into each 12" hem and tape the ends to the wing while stretching the plastic slightly.
4. Reinforce the cells as shown with narrow strips of strapping tape at the top and bottom perimeters and also the length of the cells at each frame stick location (in thirds). This can be facilitated by slipping the bag over a cardboard trimmed to the width of the bag.
5. Staple the cells through the tape strips to the side sticks and keel sticks of the triangular box. (An ordinary

office stapler works very well for this task.)

6. Starting at the bottom, tie each set of wings to the side sticks of the box section by sewing around the matchstick bamboo strips and tying securely. Overlap the next set of wings 4" over the bottom set and tie them to the center section. Continue this process until the wings are in place.

7. Attach wing spreader connections using eyelets and drapery hooks or whatever you prefer to make spreaders. The triangular box may also be braced with four spreaders between the side sticks. Let the keel float free.

8. Tie the bridle as shown. The bridle strings from the side sticks at the top are only necessary if the kite does not fly straight. (This is an old trick on Filipino kites. Tightening the right string will cure a left hand lean and vice versa.)

9. Decorating can be done with permanent ink felt pens for a vivid appearance in flight. Two tips: the big fat markers lately imported from Japan have broad tips and speed up the process. If the colors seem a bit pale, color both sides of the plastic to increase the intensity.

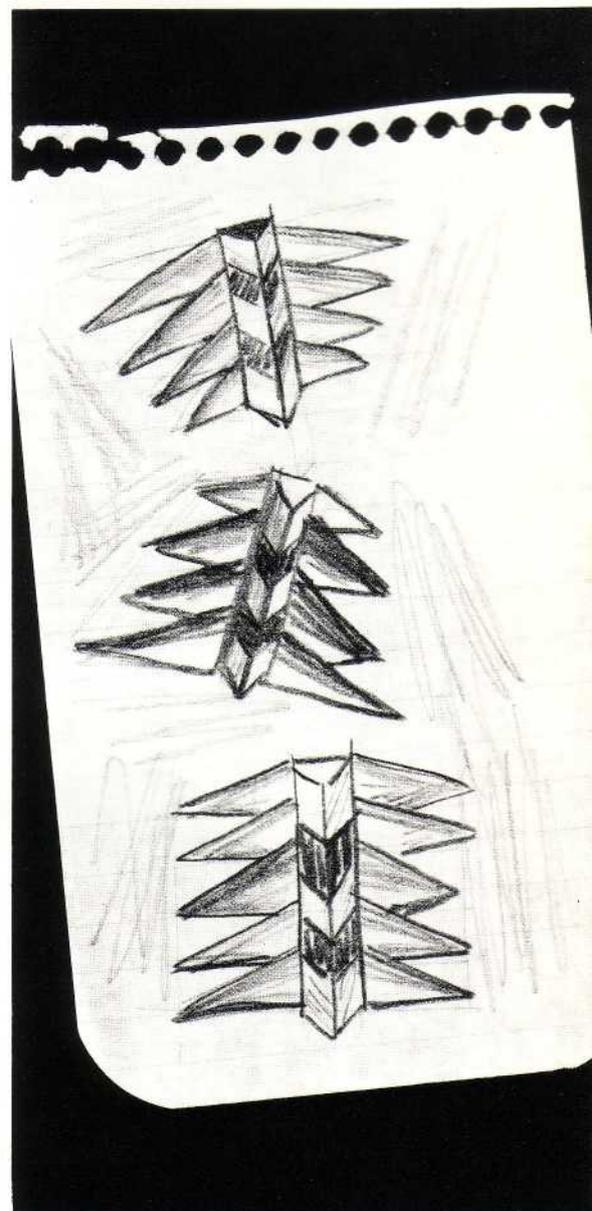
10. Gussy it up with tails if you like. I used 2 pieces of surveyor's tape about 42" long at the lower wing tips.

FLYING NOTES

This kite is a good performer in winds from 3 or 4 miles per hour, and the nice surprise is that it turns out to be an excellent strong wind kite, flyable in velocities as high as 25 miles per hour. It will achieve vertical flight in thermals and hold up a lot of string. I use about 1000 feet of 15-to 25-lb. test monofilament.

VARIATIONS

Though right now Stacked Deltas seems like an ultimate design, next year I might come up with another design to make me neglect this one. Of course, variations of this plan can be made with wings of different sizes on the same kite or a different number of wing sets than four, such as . . .



NEIL THORBURN is the author of a 20-page booklet, Super Kites, 1975 (see Classifieds) devoted to his kind of kite—the winged box. Seven varieties are served up in the manual, fully detailed, and five additional sketches suggest further possibilities. A Thorburn kite is marked by two traits: miserly expense of materials (plastic bag coverings) and lavish expenditure of time and brainwork. Stacked Deltas is the latest of Thorburn's innovative designs, and, like his others, combines striking airborne appearance with outstanding performance.

What's New: Kites, Books, Sundries

Kites

By Mel Govig Assisted by Rick Kinnaird and Welka (Red) Braswell

THE GRANDMASTER KITE

Here's a new kite that invites a challenge by claiming to be the finest fighter kite you will ever own. After an hour or two of skeptical flying, you may relax as I did and start to enjoy flying what might well be the finest fighter kite you have ever flown.

In America we have come to accept excellence in manufactured products as a twentieth century replacement for the work of artisans and craftsmen. Kites, however, are still a bastion of hand-craftsmanship, and the Grandmaster is a case in point, built to standards that could not be economically machined.

Grandmaster is not new, it is as old as Stradivarius and Tatsusaburo Kato and his father and his father's father.* In other words, the design is a classic. But the materials used in the Grandmaster are modern, the details updated and perfected and the decorations beautiful.

There is a temptation, born of the frustration of flying fragile tissue fighters, to treat a kite this beautiful as a wall decoration, a museum piece. Fortunately, the Grandmaster is tough enough to fly for many, many hours without destruction. The paints may become a little flaked, on close inspection, after a few hours fighting the wind. But the designs are well-planned and the colors bright, so that the effect in the air remains fresh.

In flight, the Grandmaster is very responsive. Because of the firmness of the Mylar® cover and the springy fiberglass spar, it is faster moving and quicker turning than any other of the diamond fighters I have flown. After an hour or two of practice with one of these kites in a five- or six-knot wind, long enough to re-train your reflexes to pull when you want to let-out and let-out when you want to pull, you should be able to keep the Grandmaster up. So, in a few hours you can really appreciate a kite that spins left or right, dives, climbs or darts in any direction *as you want*. The sense of power is marvelous.

Although at \$18 it is rather more

expensive than most fighters, you get your dollars' worth. With Grandmaster you will also get some building ideas that are truly inventive. It would not be fair to the designer to tell them all to you here when he has invested so much time in developing them. The treatment of the framing of the trailing edge, the nose of the kite and the junction of the spar and spine are all unique and worth adding to your kite lore.

If you have not flown fighter kites, I recommend that you as a beginner learn to fly a fighter with a Vic's, Quicksilver, Mylar Star or other make of fighter kite and keep the Grandmaster for the day your skills are developed. Although the instructions that accompany it are so explicit and informative that I believe anyone could learn from them using the Grandmaster kite alone, I think you would be wise to try a less expensive model, in case you decide you don't care for fighter kites. The instructions also include a good safety code.

*Tal Streeter, *The Art of the Japanese Kite* (New York: Weatherhill, 1974), p. 47.

NEWS IN DRAGONS

Just when you think everything has been done with the cobra as a commercial kite type, along come three more versions to extend the popularity even further.

The decorative designs of Ken Bourgeois, which have been featured

by *Kite Tales* in the past, have been put into production by Mylar Star in two new kites. Both the Silky and the Bug feature application of die-cut corrugated panels to mass-produced kites. As variations on the cobra, they fly with the dance and spectacle we expect of the undulating snakes.

The Silky (Flying Ribbon) kite is a small but excellent-flying version of the classic cobra. Die-cut head and untapered tail help to make this a low-cost kite (about \$2). Flown on light thread, this kite should be a delight for those youngsters from 4 to 10 who are so often given cheap, small, *complicated* kites to fly. Here's a cheap, small, *simple* one, the kind I sometimes call a "puppy-dog" kite because it follows you around on a short leash like a faithful pet.

Flying this kite, I found myself wondering how several of these little ribbons would do in train. Someday maybe I'll take my large needle and string a few of them together, through-the-kite style, knotting each at its bridle point. It ought to work well.

The Bug is a flamboyant, totem-pole-looking arrangement in the air. In its package and by its label it appears to be a centipede kite, the design that is put together of successive cells flown in tandem and fitted with outriggers and streamers. However, the cells of the Bug are bridled to fly *in the plane* of the leading cell so that the kite flies like a cobra, with the after cells flying behind and weaving up

DATA CHART

| | Size | Material | P | AT | ED | EWS | AF | SL |
|---------------------|-----------|--|---|-----------|----|------|--------|----|
| Grandmaster | 24x29" | Mylar,® cedar, fiberglass | G | assembled | VG | 3-15 | 0-90° | S |
| Silky | 7½"x10' | Mylar, corrugated cardboard and rattan | E | assembled | G | 3-15 | 20-50° | N |
| Bug | 4x20' | Mylar, corrugated cardboard and vinyl tubing | G | assembled | G | 7-15 | 55-60° | I |
| California Sunshine | 18"x45' | Mylar, rattan | G | assembled | G | 4-15 | 45° | N |
| Spinning Janny | 12x12x36" | vinyl, dowels, styrofoam | G | 30 min. | G | 8-25 | 30-45° | I |

Code: P=Portability; AT=Assembly Time; ED=Estimated Durability; EWS=Estimated Wind Speed (min.-max. mph); AF=Angle of Flight; SL=Skill Level: N=Novice, I=Intermediate, S=Skilled
Ratings: P=Poor, F=Fair, G=Good, VG=Very Good, E=Excellent

*FREE KITE KIT



FREE KITE KIT!
Introducing the Nisei
Kite (Japanese-
American) – the
Japanese war kite
updated by Mel Govig
in easy-to-make
KIT form.

An AKA Special
Offer for signing up
new members plus a
Mini-Contest to
challenge you.

FREE* KITE KIT!

Introducing the Nisei Kite (Japanese-American) — the Japanese war kite updated by Mel Govig in easy-to-make KIT form.

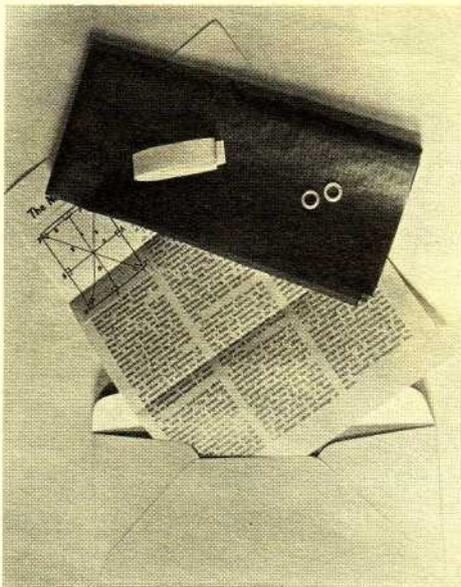
An AKA Special Offer for signing up new members plus a Mini-Contest to challenge you.

A one-ounce kite with three square feet of lifting surface — exceptionally light for its area — the answer to your needs on those low-wind days. Pump it up and it flies! Walk around with it and it flies! Yet it's surprisingly strong in heavy winds, up to 25 miles per hour. And it gives you that coveted high angle of flight, up to 90°. Best of all, you make it yourself!

This kit is very simple. It includes the complete printed instructions, tape, O-rings and one 18x24" piece of top-quality, super-light rip-stop nylon in one of various colors (randomly selected). All you will need to add are 1/8" dia. dowels (four 36" or three 48"), line and tail. Access to a sewing machine will be useful for hemming one seam and attaching seven small pockets, but instructions for hand sewing are also included. This will be *your* kite.

The plans are complete, carefully drawn and easy to follow, assuring success for anyone, including youngsters from 10 years up. Flying and safety tips are included, along with philosophy on the distinctions between the Japanese war kite and the Korean fighter.

*How do you get your *free* postpaid Nisei Kite Kit? Easy! Send in *two new members* at



\$6 each (no renewals) for AKA. Or you may send *one* new member and pay \$2, postpaid, or send *no* members and pay \$4, postpaid. Simply fill out the membership form(s) on the colored sheet in this issue, enclose check(s) or money order(s), and send to AKA. You will receive your Nisei Kite kit by return mail.

P.S. Do you want more than one set of materials, for more than one kite? We will send *one* extra set of materials for *each* new member besides your first two. Line up all your kiteflying friends — and make a train of these kites!

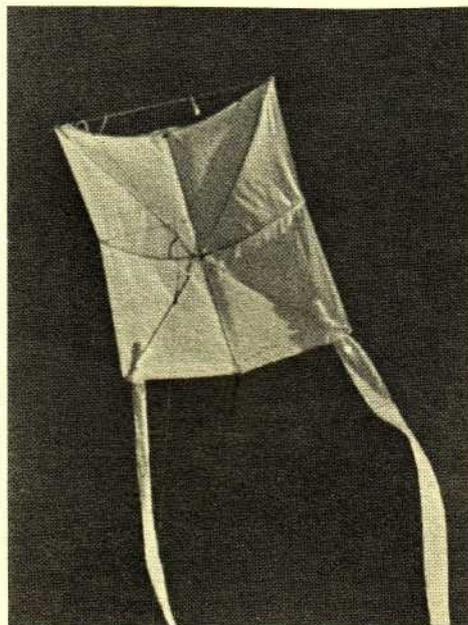
Alternatively, if you already have the materials and want *plans only*, you may obtain them for one new member or for \$2.

This Special Offer expires on September 1, 1978, or sooner if quantities are exhausted. (Quantities are limited to 2500 kits.)

Note: Special Mini-Contest: The person sending in the *most* new members by September 1, 1978, will receive a gift of 10 yards of rip-stop (worth about \$27!) (For this purpose, running totals will be kept and after you send in your first two members additional names may be added one at a time and need not be sent in all together.)

To aid you in bringing enlistments to AKA during this offer or at any time, you may want to distribute our Little Puffs about AKA (our information folders with membership applications). Puffs are free on request; just send a stamped, self-addressed business-size envelope, please.

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and down in the same fashion as the dragon cobras.

The Bug is both more beautiful and larger than its name would imply. It is one of the most spectacular commercial designs you will ever see in the air. For about \$15, it offers the non-builder kiteflier an opportunity to fly a kite that will get the attention usually reserved for hand-crafted kites.

More conventional in design is the California Sunshine Dragon (from Come Fly a Kite in San Francisco), the newest of the regular cobras to rustle forth into the skies. It's well-made and tough, in Mylar, like most cobras. We found its performance to be as good as the best of the dragons,

easy-off-the-hand and trouble-free in the air. Its \$12 price is a little higher than some, but that includes a spool and line, and the kite's beauty, especially its beauty in flight, may justify the expense. Instead of having just a decoration on the face, the multicolors flow down to the end of the tail. Also the colors are *all* translucent; most cobras are basically one-color kites printed with opaque colors which go dark against the sky. Thus the Sunshine is more vivid than most and its ripply tail is snakier than usual. Here's the kite for dragon lovers who want the newest wrinkle—or wriggle—on the market.

THE SPINNING JANNY

This is a box kite and a rotor kite, but not quite either. As a box kite, the Spinning Janny Super 8 is bridled from the center top. As a rotor, it revolves around its vertical axis, not horizontally as you would expect. At \$6.50, it has some unusual assembly features that might be transferable to other box kite designs. But—I hate to admit it—I could not get it to fly. I gave my sample to my friend Red Braswell, a rotor kite freak, who had better luck or better winds, and he provided the flight data for this report. Red and I agree on one thing: for the collector of novelty kites, this one is novel.

Books

By Valerie Govig

After a long period of infrequently published kite books, 1977 has produced a bumper crop. In the Summer *Kite Lines*, I reviewed two published for the year, and now I've just read two more. Whether the sudden little flood is coincidence or a reflection of the growth of kite interest is open to speculation. The quantity might be encouraging if the quality were high, but it's an uneven lot and includes two works that are sadly lackluster.

James Michener was recently quoted as saying, "I write the kind of books I do because of my interests. It's not the other way around. I don't decide to do a book, and then go find out about the subject. I get interested in something, and the book comes naturally out of my interest." Kite authors should heed those words.

HOW-TO, HOW-TO AND HOW-TO
Create-A-Kite: How to Build and Fly Your Own Kites, by the Editors of Consumer Guide (Simon and Schuster—Fireside Books, 1977), 128 pages, \$4.95.

A book with a committee for author elicits my admiration on the one hand (because of the difficulty of this method of writing) and my suspicion on the other (for its being anonymous). This book is doubly anonymous, for it declines to identify any of its sources. For example, it picks up some techniques for decorating paper and cloth that the Newmans used (rather spuriously, I thought) in *Kite Craft*. And its launching advice includes "winching" kites up, terminology that is eccentrically Pelham's (in his *Penguin Book of Kites*).

While this kite book's contents are (perhaps inevitably) derivative, its format is its own. Except for three opening chapters (on history, decorating and flying), each chapter is devoted to a different kite—20 altogether. The assumption seems to be that nobody wants to read anything outside the specific chapter of instructions he or she has chosen for making a particular kite. The editors may be right, but the trade-off for this approach is that several procedures (such as lashing) common to many kites, complete with their illustrations, are repeated over and over again through the book. It's a question of economy versus self-sufficiency of parts. A scout leader, if so inclined, could disassemble this book and distribute it to his or her youngsters.

So how do the instructions themselves stack up? Fairly well. Except for the improperly bridled tetrahedral kite, the designs are explicit, correct and clear. They are also complete, to a point; however, they give no alternatives or leeway for "creativity." Bridling, for example, suffers from this approach.

Some minor quibbles: First, the color illustrations in the center of the book are merely colored versions of the designs drawn elsewhere, and thus add little to the contents. Also a number of them are confusingly arranged sideways on the pages. The added expense of color printing must have been calculated as important in furthering the book's explicit style. Or perhaps color is believed able, by and of itself, to attract book buyers.

Second, the Parafoil is oddly titled the Elaborate Parafoil. It is no more elaborate than any other Parafoil.

Third, the book lacks a bibliography or any references to the larger world of kiting.

Fourth, of the five photographs used, four showed commercial kites (inappropriate to a book on construction), and all four bore ludicrous captions. To be fair, it should be said that the drawings were clear and professional, and the book was illustrated primarily with drawings.

Many people buy a kite book not knowing that others are available, and trusting that their purchase is reliable, up-to-date and complete. *Create-A-Kite* fulfills the need for kite plans and kite plans only. I think sophisticates will be dissatisfied with it, and even novices may recognize that their intelligence has been underestimated.

ANOTHER "BIG" KITE BOOK

The Complete World of Kites, by Bill Thomas (Philadelphia and New York: Lippincott, 1977), 176 pages, \$6.95.

According to its introduction, "This book came to be not exclusively for the beginner or for the veteran kiteflier, but for people everywhere and all time to come who are fascinated with kites, who never flew one but would like to." Thus in wobbly prose the book defines its broad audience and enters the popularity race with *The Complete Book of Kites and Kiteflying*, by Will Yolen, and with *Kite Craft*, by Lee Scott Newman and Jay Hartley Newman, and with others.

Bill Thomas's large paperback

package offers a mixture of contents. I found it interesting when it probed new areas, as it sometimes did. The first chapter, "The Kite That Created America," was evidently built on ideas from Isaac Asimov's fine book, *The Kite That Won the Revolution*. This section attributes Ben Franklin's success in obtaining French support against the British to his prestige as a scientist and his experiment with a kite. The point deserves mention but the writing style labors it.

A chapter on kites in warfare has some stories I had not seen elsewhere. One tells a legend of a grapnel-carrying gecko flown on a kite behind enemy walls by a 17th century Indian Shah. Another is about Harry Sauls and his barrage kites and includes direct quotations and original research of interest.

Further along we read a good deal about Pocock's *char-volant*. Thomas sounds oddly like a debunker 150 years late. If you want to know more about the college team that attempted to break the duration record in Bermuda in 1973, it is well covered here. Over four pages tell about Bob Lewis's fishing kite rig and there is a description of how to make your own. An interesting section is devoted to kite sailing, in which much of the writing is from the sport's deviser, Gordon Gillett, today's Pocock-on-the-water.

One chapter each is given over to hang gliding and towed water ski-kiteflying. Do these sports belong in a book on tethered kites? Whatever your philosophy regarding the relationship, these forms of gliding get short shrift in their space allotments.

I wish I could say that the chapter "Why Kites Fly" has the whole story at last, folks, but the description, while clear as far as it goes, is disappointingly elementary. This chapter closes with a wind-speed selection chart for 10 types of kites. It's a good idea, one of the book's best items, but I predict that it will become the next hot topic for dispute in kite conversation. ("What! Hargraves don't fly under 10 miles per hour? Why I had a little box back in ought seven . . .")

The kite construction information I found to be sketchy and flawed in many spots, as in a faulty lashing diagram. The traditional paper-and-glue routine is here, while taping and sewing are slighted. The plans, some 18 in all, were drawn by Frank Scott, son of the late great kiteflier, Walter Scott, and in his own right a noted kiter and the

popularizer of the sled. The illustrations include some good details (such as the fabric corner detail on the Eddy) but the accompanying writing is often misleading (for example, a taut cover is recommended for an Eddy, which we know depends on pocketing to fly well).

Little attempt is made to order the presentations in helpful sequences. For instance, remarks about decoration of the various kites usually follow the construction tips. As old hands know, you decorate a kite before framing it so your working surface is free of bumps. Readers forewarned about these instructions will read through them and plan ahead before plunging in on any kite. But in spite of their shortcomings, these plans have value because about half of them are either new designs or new applications of known designs. These are followed by drawings for six accessories: Scott's line scale, Blinn's electric reel table rig and line-measuring device, Hod Taylor's angle-finder, and two items from the late E.A. McCandlish (not McCandish!)—a drop release and a "honker" noise-maker. These plans are the book's strongest asset and for many readers will be reason enough to acquire the book.

Thomas's discussion of flying locations is more comprehensive than usual, but safety rules are scattered through the book and thus lack emphasis. Launching is poorly described, and the photos in this part embody bad advice. In particular, one shows a boy on his knees in a small boat launching a large delta-Conyne—an unsafe practice. Thomas pours words into arguing the lay of the tail in the launch of a tailed kite. Frontward is recommended over rearward—correctly, but for all the wrong reasons. Aerodynamics isn't mentioned.

The subject of altitude, often of keen interest to novices, is nowhere dealt with, nor is the effect of line on performance. The chapter about kite contests and a paragraph on kite etiquette are good tries but very incomplete. The same can be said of the appendix on kite organizations, shops and manufacturers. But, hurray! the book has a fair bibliography, and annotated, too. Yet, sigh! it lacks an index.

Some general observations: The book is seriously under-illustrated. Many verbal descriptions are tedious, hard to picture, and have no purpose except to fill in when an illustration

was needed. Kites are a visual subject!

Second, Thomas's grandiose style, though occasionally relieved by humor (see the Windbag Kite), wore me down fast. The good information the writer received from his Special Consultants, Frank Scott, Gordon Gillett and Dinesh Bahadur, was entangled in the errant lines of an apparently unseasoned kiteflier. The result, I believe, is that the average reader will be frustrated as often as helped in these pages.

Is the book for beginners or veterans? Neither. Its style is patronizing and some of the kites are easy, but you'd better know enough to read past the errors and omissions.

In spite of its drawbacks, the work is one I can recommend to collectors of kite books for the good designs it does contain and for its occasional success in presenting new material. But if a new enthusiast is looking for one book he or she could rely on to fill most needs, this wouldn't do the job.

THE BEAUTY OF KITES

By Paul Edward Garber
and Valerie Govig

Kites, by Jean-Louis Bloch-Laine, Jean-Michel Folon and Paola Ghiringhelli (Woodbury, NY: Alice Editions, Barron's Educational Series, Inc., 1976), 119 pages, \$15.95.

If you have been looking for a kite picture book to place conspicuously before house guests, your wishes are answered in this striking volume, unconventional in design and content. Here the coffee table book genre is carried to an extreme of visual feast and literary famine.

There is one page for acknowledgments, three pages for listing of plates, and one page for an amusing preface that antedates all other theories about the origin of the kite by attributing its invention to our most remote ancestor. Further departure from the Biblical account of Adam's activities describes his kite as heart-shaped and therefore attracting a lovely female companion to whom he offered an apple. We can assume that when Adam suggested other diversions Eve didn't tell him to go fly a kite.

There you have it—five pages of text—and the rest is pictures. But what pictures! The quality of color photography and printing is outstanding. From the interesting variety and the accreditations, it is obvious that the authors examined many sources and unearthed new material.

Continued on page 23 . . .

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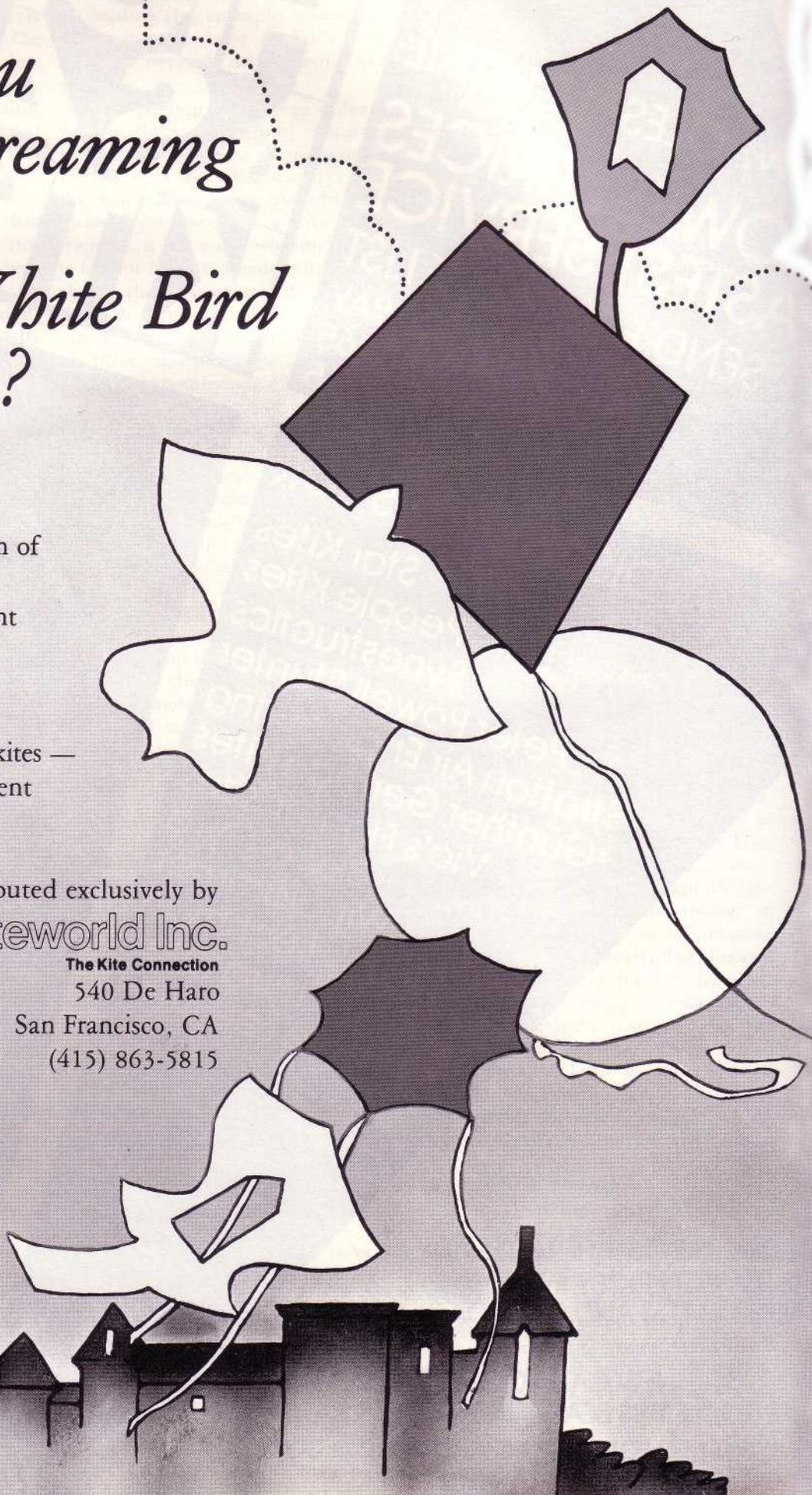
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What's New

... Continued from page 20

The first 36 pages are one-color sepia prints; the following 74 pages are full color pictures. The arrangement is somewhat chronological, beginning with illustrations from 17th to 19th century sources showing kites of deltoid or pear types. Then follow many varieties of kites and scenes from the Orient, Europe, Melanesia and the Americas, as well as kite experiments, uses and forms, including some huge winged box kites and even larger Japanese craft. Pioneer kite makers Nikel, Lamson, Eddy and Hargrave are identified, though others are not (*i.e.*, "unknown with kite" is all we read for plate 22 — tantalizing!) Some of the pictures are ones we have seen before, but most are rescued from obscurity, such as the Bauhaus kite festival of 1921-23. Two pieces of fine art depicting kites are reproduced: Goya's "La Cometa" and Paul Delvaux's "Les Demoiselles du Telephone," 1951. The latter has a double shock effect, combining exposure of a kite to a veritable thicket of overhead wires — and exposure of a kiteflier to the elements.

The book's color section begins with the fighting kites of India, first in a series of 19th century examples of a wide variety of decoration, then in several photographs of (presumably) contemporary scenes from the intriguing streets of Ahmedabad and Jaipur during Utran. Following them are some color reproductions from antique sources, including a delightful miniature of two Indian maidens and their kites.

Finally we arrive at the crescendo of the book, the outdoor scenes of beautiful kites, most of them in flight, a few after landing. There are birds, butterflies, insects, deltas, multicellular shapes, a variety of huge rectangular Japanese kites, a multidisk centipede casting its sinuous shadow on sand dunes, cobra kites and other long-tailed forms trailing across sunset backgrounds, and many more. All are exquisitely photographed, mostly around the pastoral village of Burcy, France, by Bloch-Laine. Among the exceptions are eight by Tsutomu Hiroi, but these and the other Oriental kites fail to shake the book's decidedly French accent.

The extremely brief credits do not justify some glaring mistakes and

omissions, such as identification of the Ed Grauel Bullet (which appears twice) as "Allison, nylon, United States." And then there is number 59, "Rescue Kite, invented by Gipson-Girl (*sic*), used by the navy during the 2nd World War, canvas and metal, Great Britain."

One could quibble, too, that the selections are not well balanced as an overview of kites, and include some repetitious and relatively uninteresting pictures (*why* so many shots of dragons over New York's Central Park?) But in a way the shortfalls are like model Lauren Hutton's crooked teeth — they add to the charm, they induce an arresting tension.

Handle the book carefully because the most beautiful picture is on the cover. It shows a double-lobed kite flying with extended streamers, the setting sun beyond, and above it a long straight contrail reminding us in a dramatic way that the kite is the ancestor of the supersonic sky-streakers of today.

This book will be enjoyed again and again, encouraging the reader to make and fly and decorate and seek out more and more kites. All in all, it is an impressive reminder that kites and kiteflying are beautiful. ◇

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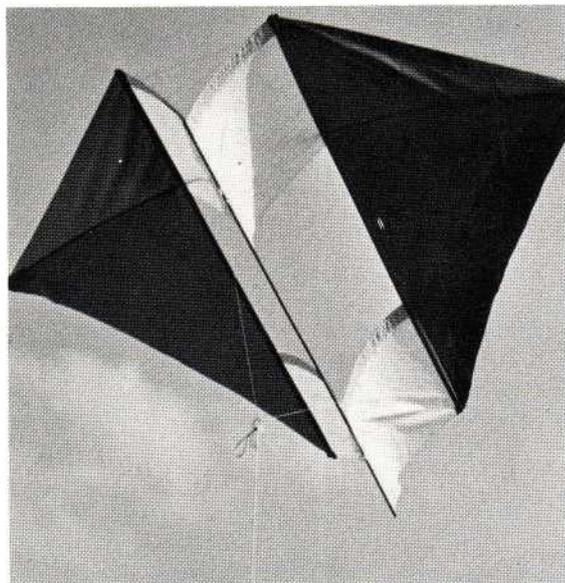
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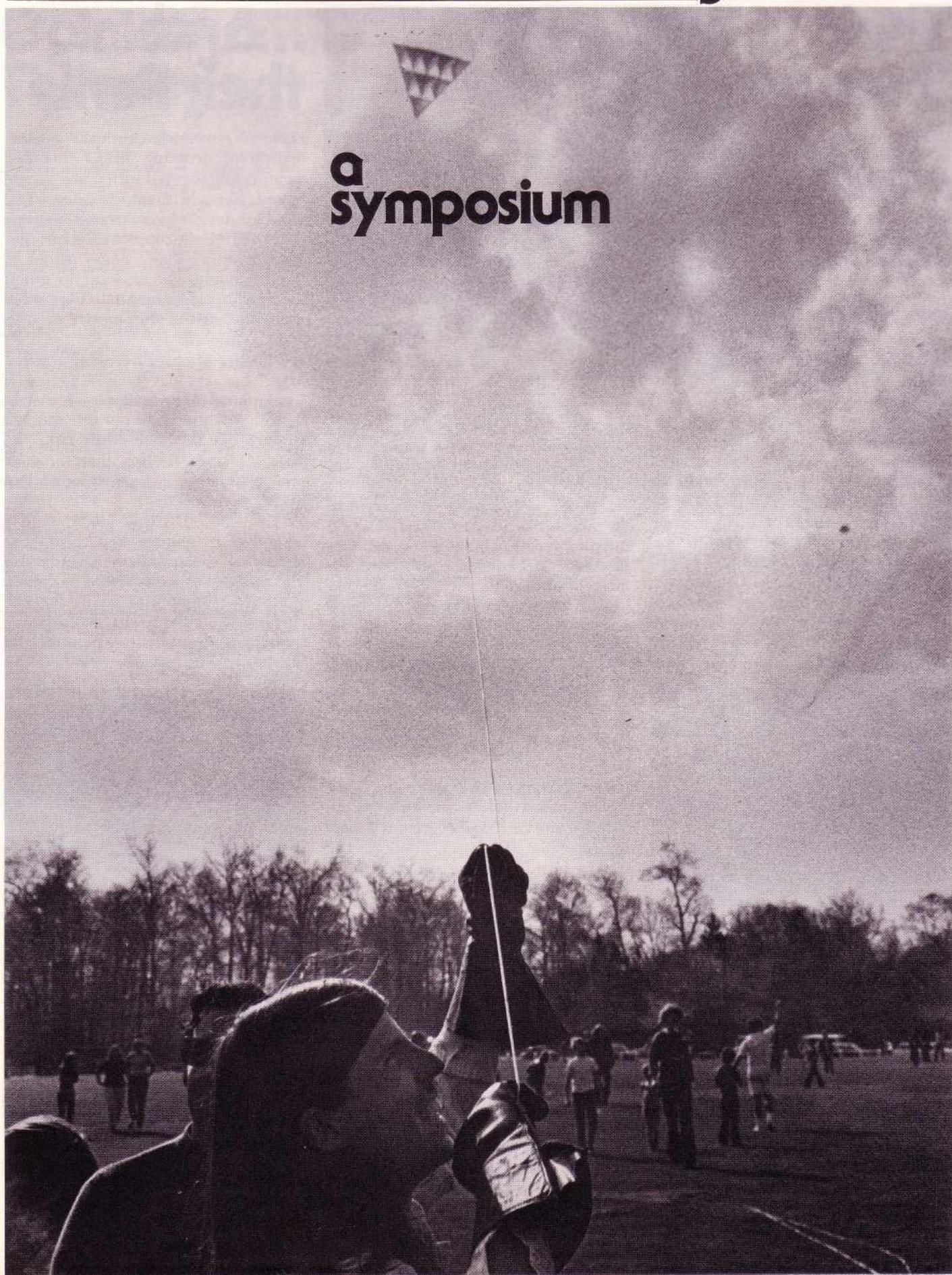
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The Many Facets of the Tetrahedrals

a
symposium



Their Theatrics

Carl Douglass Jewell as a young man in 1971 discovered some *National Geographic* articles of the early 1900's written by Alexander Graham Bell. The subject was Bell's design for a kite based on the tetrahedron. It was a new idea in its time. Since then the design has appeared in nearly every kite book published, yet the arresting quality of the kite still has effect.

Doug Jewell was captivated by the invention, and had no reason to disbelieve Bell's statement that "Tetrahedral kites combine in a marked degree the qualities of strength, lightness and steady flight." These claims are disputed today, but Doug was an innocent then, and a believer. He set out to make his own version.

It became a major project because Doug was going for size. His kite was to be 16 cells, about 18 inches per cell side, and taller than he was on completion. With a little help from a team of friends, he sewed the cells, decorated them fashionably with ecology symbols, fitted the aluminum tubing, even built

a winch. The wind was favorable on the day of the Maryland Kite Festival, and Doug drew oohs and aahs from the crowd and top scores from the judges. It was live theater and undiluted glory.

The next year Doug made an improved and larger model using dowels. It was 10 cells this time, but each cell was four feet to the side. Also the cells folded flat for carrying and were ingeniously connected on the field. Doug had set screw eyes into the dowel ends. Then when he twisted wire through them, the kite suddenly took shape on the field.* With his assembly system, Doug could—and did—arrange the cells in a number of variations, all workable.

On one occasion in strong winds, the kite broke its line and drifted off over a wooded neighborhood, landing in a backyard elm. Doug shook down most of the cells, but one wouldn't budge. He asked and received permission to saw off a limb—and saved the kite.

Doug went to every kite competition he could for a few years before the excitement wore off and other interests intervened. But he still has the kite and occasionally gets it out and shows it off. It never fails to bring gasps.

Showing off as motivation for kite-flying should not be underestimated. To a greater or lesser degree, it is part of the game for every kiteflier. For tetrahedron buffs, that degree is definitely greater. The show is just about everything.

As Doug says about his tetrahedral: "I've had some great times flying that thing."

*Doug's kite system was photographed by the Newmans for *Kite Craft* (New York: Crown, 1974), p. 177.

**The Thrill of Victory . . .
Doug Jewell (right) and teammates
with his first tetrahedron.**

**. . . and the Agony of Defeat.
Michael Byrne (right), grounded, finds you
can't sacrifice might for light.**

...and their Perils

Have you ever tried to make a tetrahedron of drinking straws threaded together and covered with tissue paper? Sounds like a brilliant idea, doesn't it?

Such kites do look attractive, especially with multicolor treatment, but after investing many hours in one, a builder might almost want to admit the inadmissible in kiteflying: it's a shame to have to fly one. Or even to take it outdoors.

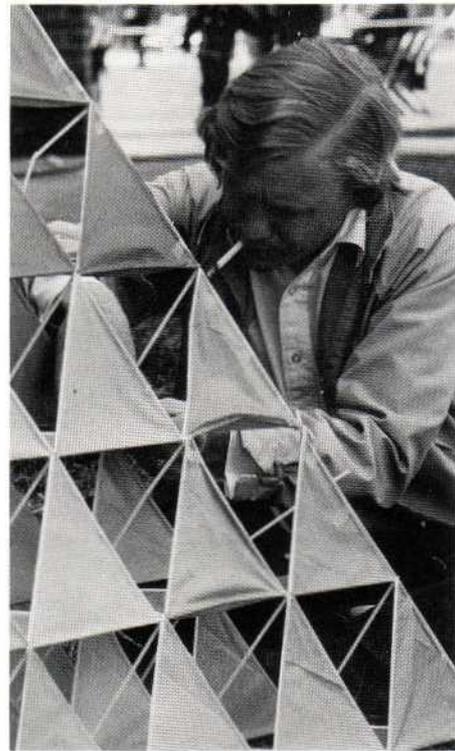
Consider Michael Byrne of Towson, MD. The very day that Doug Jewell was lapping up accolades for his tetrahedral, Mike brought out one too. (At contests like this, one of the risks you always take is finding that someone else has made the same design—and worse, made it better.)

Mike's 56-cell tissue job, though a second-place winner, kept him busy taping on repairs all that windy day and was demolished by the end of it.

Mike was quoted as saying the kite cost him ". . . about \$10, two or three hours each night for two months, and maybe my wife, too." V.G.



David W. Garrison



David W. Garrison

When Ed Grauel and Mike Riley sent Kite Lines their nice tetrahedral kite plans (see following), we decided it was high time to air the clashing views that seem to attach to this invention. We fired off a question to our Editorial Advisory Panel and to a few others familiar with the kite. Our question was, "What is your opinion of tetrahedral kites?" Excerpts from the divergent replies are printed here.

Opinions & Theories

Alexander Bell's primary objective, as I recall it (he and I were buddies, of course) was to achieve structural strength, and that he certainly did. But he achieved it, as Bell himself and Curtiss and Caproni did, at the expense of tremendous drag coupled with minimal lift.

The tets I have known were reluctant fliers in any save a quite strong (10 miles-per-hour plus) breeze. Some of them may have flown very well and to high angles, but I never saw one that had any yen for an angle of better than 45 or 50 degrees.

Hence, my opinion, summed up, is: they fly okay and very steadily—but they are, I feel, the least efficient of kites.

WYATT BRUMMITT

I try to keep (even pride myself on keeping) an open mind. But, when it comes to tetrahedrons, I'll have to admit that I have a mind-set against them. In my experience, they are:

First: almost impossible to transport. I've found that I needed a van.

Next: they don't fly very well!—at a low angle in a high wind. And when the wind is sufficient to fly one, they become unstable.

Last: I have seen ONE tetrahedral that looked good. It was made by two 14-year-olds out of tooth-picks, and each tiny plane was decorated with felt-tip pen. It was awe-inspiring—not for the artistic quality, but for the labor of love that must have gone into it. Its only redeeming feature was the wonder that such an unlikely looking thing would get into the air at all, in my opinion.

JACK VAN GILDER

The impression I have is that they are cute, clever, pretty, and relatively inefficient.

In order to fit the pretty geometric pattern and its inherent strength, the dihedral angle is much greater than one would like or need to have. This creates unnecessary drag and unnecessary loss of lift compared with the total wing area and associated weight.

One advantage is that the construction lends itself to rather large kites which appear to fly in a relatively serene and regal manner, but no more so than any other kite of large area and weight. The apparent stability of the large format kites, I am sure, derives largely from the fact that large wing areas tend to average out the small turbulences of the capricious winds so that all looks relatively calm.

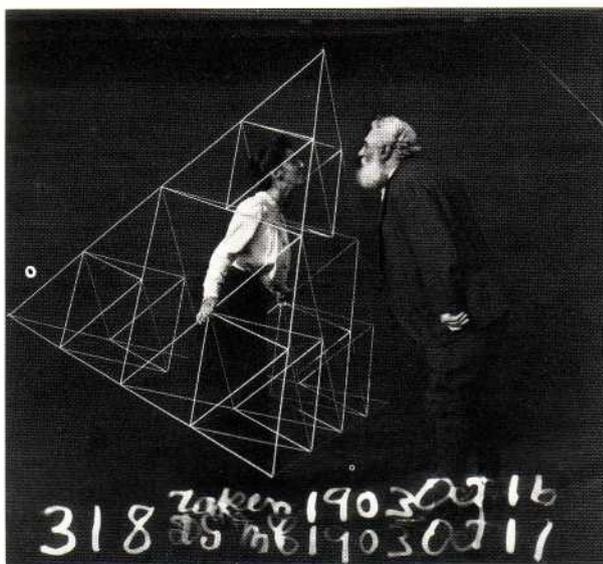
CURTIS MARSHALL, M.D.

There are many kinds of large kites, but tetrahedrals appear to be more than just large; they seem massive. Perhaps it's their association with the great pyramids of Egypt. To the uninformed onlooker, an airborne tetrahedron seems no less amazing that if someone had tied a string to his Lincoln Continental and let it cavort around in the sky.

MICHAEL S. RILEY

The tetrahedral is like Miss America. She doesn't really have to be talented; she makes it on looks.

VALERIE GOVIG



Alexander Graham Bell was not available for comment at the time this symposium was prepared.

We were able, however, to obtain this 1903 photograph from the Library of Congress, in which wife Mabel poses enchantingly inside a tetrahedral frame. The scene assures us that the distinguished gentleman did appreciate lightness.

When I first went out with my tetrahedron, Bill Bigge was there, shaking his head and saying it won't fly. Everyone said it wouldn't go up, wouldn't be stable, and so on. But then the thing went up. It was heavy, 8½ lbs., but there it was. I think the gauntlets might have had a lot to do with it.

CARL DOUGLASS JEWELL

The tetrahedral kite offers a challenge for accurate workmanship and can be started off with only four equilateral triangles covered on two sides forming two dihedral planes.

A multiplication of these four units can be added to almost unlimited size (within reason) forming something like a pyramid. With favorable winds these are easy to launch and more should be made and flown at kite contests and festivals to let it be known to John Public that these are the types that Dr. Bell made famous.

A colorful tetrahedron is a beautiful sight in the sky.

DOMINA C. JALBERT

The principal virtue of the tetrahedral kite is the capability of stacking many small units to build a very large, very rigid structure. Unfortunately, it is not particularly efficient. There are rigid struts on all edges of the tetrahedron and one of them is always a generator of pure drag.

When many cells are assembled the ratio of lift to drag does not increase: in fact it probably decreases, if more than one tier of cells is used.

(Sour grapes note: I have never made a single cell tetrahedral that flew without spinning.)

ROBERT S. PRICE

The tetrahedral originally commended itself to Bell by its structural efficiency and its stability. It is still a good design if you want to make a kite of low-performance materials or make a larger than normal kite of normal materials—if there is lots of wind.

It may be said that the tetra has fine innate stability, but the aerodynamic efficiency is low. This is to be expected considering that, in effect, it has more stabilizing surface than supporting surface. Some fliers may find its characteristics just right. A flying tetrahedron is admired by the average spectator—and by the kiter who recognizes it as not all that

easy to fly.

The tetrahedral will probably go on forever. It can no more be forgotten than can be the sphere.

The minimum number of cells for a regular tetrahedral kite is four. I once tried to fly a single cell but it was unstable.

WILLIAM R. BIGGE

Comments apply to single cell kites only:

Plus: Rigid structure.

Minus: Too many sticks relative to the flying area achieved. And they must be straight, for true trim, therefore tend to be heavy.

Minus: Many joints are a disadvantage, if you want a simple, lightweight structure, but—

Plus: They are an advantage if your interest is in the challenge of building.

Plus: It is an historically interesting kite.

RAY HOLLAND, JR.

My general comment on tetrahedral kites is that they can be very good or very bad, depending upon the weight of the materials used.

The proposal I submitted (following) was to present a case for the lightest-weight dowels (1/8-inch) and very light plastic covering (1½-mil.). If made this way, I can assure you it is a very fine-flying kite. It will take off easily in a 6 mile-per-hour wind, fly steadily and reliably up to 24 miles-per-hour, and come in smoothly. A ratio of 4.0 is respectable, and as good or better than the ratios of 20 different types of box kites I have measured over the years.

The lightweight tetrahedral isn't too bad on elevation, either. I have measured it up to 65 degrees, which give it a 2.145 lift to drag ratio—quite satisfactory for any kite with so much construction weight.

Also the version I propose uses rubber bands for connections and therefore can be dismantled, if anyone wants to go to the trouble.

EDWIN L. GRAUEL

We began producing our TetraKite™ more than five years ago. Since then, hundreds of thousands of our TetraKites have been successfully sold and flown all over the world, and our file of appreciative fan letters is voluminous. We feel we have consistently produced a kite of good value, high quality and

The Tetrahedrals

excellent flying ability. The virtues of our TetraKites are those discovered by Bell himself when, at the turn of the century, he was interested in manned flight and settled on tetrahedral kites as the best design for his purposes.

Because the tetrahedral shape is a triangulated space frame, it has extraordinary strength-to-weight ratios and produces a very stable, rigid structure. Our TetraKite is particularly stable in flight and will fly successfully in strong winds that are anathema to most other plastic kites.

MICHAEL S. BANK

Chairman of the Board, Synestructics, Inc.

I've seen TetraKites used very well as decoration. Here in town (Cleveland, OH), a car dealer hung them from the ceiling and in the windows of his showroom. These were all Tetras in silver and red, and they were very effective that way. The display was very simple, very clean, and reflected the light. It was certainly an eye-catcher.

JUDITH NEUGER

The Kite Kompany, Inc., Chagrin Falls, OH

First, I want to describe what I am talking about: I consider a tetrahedral kite to be made of one or more triangular cells, each cell being a pyramid shape made of six equal length sticks, with two of the triangular sides covered.

We should remember, Bell was trying to make an aeroplane, not a kite. The main feature of a tetrahedron is its rigidity, which is important for a powered plane but is a disadvantage in a kite. This lack of flexibility will frequently cause the kite to break when it meets the ground instead of flexing with the impact.

I have seen many tetrahedrals flown and have never seen the touted stability of the design demonstrated. I consider this to be due to the fact that although each cell has good stability with reference to its center of gravity, the flying line pull, which is greater than the gravitational force, is not in line with the gravity force when the kite deviates from its normal flying trim.

See my table comparing the tetrahedral, the Eddy and an equivalent sled.

A. PETE IANUZZI

The greatest value of the tetrahedron lies in its exotic geometric design.

The tetrahedron multiplication is like erecting a

skyscraper. Each added floor makes it higher and more impressive, but it remains a building firmly rooted to the ground with added tons of weight.

ROBERT M. INGRAHAM

Let's review the claims made for the tetrahedral kites.

(1) They are supposed to be exceptionally light per unit of area. The TetraKite weighs 2.14 oz./sq. ft. Hunt's* design weighs 1 oz./sq. ft. and is one of the heaviest of his rather heavy kites. One I made from 3/16" x 36" dowels and Tyvek[®] weighed 0.7712 oz./sq. ft. but was structurally weak. Grosvenor† claims 0.6549 to 1.6373 oz./sq. ft., but it is not clear whether this is based on total surface or projected lifting surface. Cygnet (one of Bell's largest tetrahedrals) weighed 1.7847 oz./sq. ft. oblique, which works out to 3.0912 oz./sq. ft. horizontal projected surface. A good kite will weigh from 1/3 to 3/4 oz./sq. ft., so the tetrahedrals are unusually heavy. The tetrahedron may be light for its structural strength, but the 54.74 degree dihedral angle means you are getting only 0.5774 of the wing area. As a wing design this is a very inefficient use of the materials.

(2) The tetrahedrals have three-dimensional strength, giving better structural rigidity. This may be true in a sense, but it is of rather limited value on a kite. This stresses one design factor to the exclusion of all others, rather than striving for an optimum blend of several important considerations. The necessary strength may be achieved in other ways which are more compatible with flight performance. If made light enough to compare with other kites, the tetrahedron is structurally weak.

(3) It is supposed to be highly stable. Compared with what? My single-celled version was down-pitch divergent; it nose-dived to crash every time it was launched. The high inherent stability which Bell tried to achieve is undesirable in an airplane, as the French found out. Their box kites were very hard to turn around. The Wrights' were unstable but controllable.

(4) Tetrahedral cells were to be combined indefinitely to large sizes without increasing loading and without cells interfering with each other. Neither of these is true. As you pile up more and more cells, the ones on the bottom have to support more and more weight and thus eventually have to be made stronger. In flight, the lower cells have to hold down more and more lift. Pictures show that Bell's larger combinations were in fact reinforced with extra large spars. This isn't really necessary to

achieve large size in any case. The Wright Flyer I spread 500 sq. ft. and weighed 750 lbs., or 24 oz./sq. ft. This is nothing by modern standards. There is necessarily a lot of interference in a tetrahedral. The front cells deflect and stir up the air before it gets to the cells farther back. The low pressure air above the lower cells is partly cancelled by the high pressure air below the upper cells, reducing lift. My guess is that the tetrahedron is worse at this than other box kites, but I wouldn't want to be the one to do the calculations.

(5) "Even in the lightest breeze I have rarely seen it flying at an angle of less than eighty degrees," says Grosvenor. Even in strong winds I have rarely seen one flying as high as 55 degrees, if at all. None of the pictures I have seen show it flying very high either.

(6) "The kite is admirably adapted for meteorological observations at great heights, as it can carry considerable weight with the greatest ease." But the Weather Bureau used Marvin's modified Hargrave anyway. A lifting kite has to be efficient first of all and then it can be made large enough to carry the required load. The dihedral and low aspect ratio suggest an inefficient low-lift wing. Do not mistake strong pull for good lift; it may be due mainly to drag! It also makes the kite difficult to handle.

GARY J. HINZE

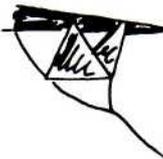
My opinion of tetrahedral kites? In one word—STODGY.

To start with, a single tetrahedral cell (by itself) will barely fly. It needs external stabilization (tail) and lots of wind. Adding three more cells provides the needed stabilization, but doesn't do much for efficiency. Adding more cells gives a bigger kite with no change in efficiency. My estimate of tetrahedral characteristics is:

String angle: low; pull: high; stability: excellent; wind: five miles-per-hour or more; visual appeal: high; construction: difficult (also transportation and storage); future development challenge: nil.

Some of the nicest tetrahedrals I've seen were small (two-to-three feet), built with balsa sticks and covered with cellophane.

Several years ago I did some experimenting with a configuration I call the winged tetrahedron, something like this:



Flies better than a plain tetrahedron, but not as efficient as a Conyne. Very lively in the air. As far as I know, nobody has ever done anything with the configuration. (I haven't done much with it lately either). This is as close as I am willing to go to the classic tetrahedron configuration. A. G. Bell pretty well wrung it out anyway.

Vagrant thought: Who ever saw a bird with tetrahedral wings?

Vagrant thought No. 2: Although I will probably never build another, I always like to see one flying. How's that for ambivalence?

ARTHUR KURLE

COMPARISON TABLE OF EQUIVALENT KITES

By A. Pete Ianuzzi

| Feature | Tetrahedral | Eddy | Sled |
|---------------------|----------------------|----------------------|----------------------|
| Sail Area | 281 sq. in. | 281 sq. in. | 281 sq. in. |
| Effective Sail Area | 162 sq. in. 6.4 gms. | 216 sq. in. 6.4 gms. | 187 sq. in. 6.4 gms. |
| Efficiency | 58% | 77% | 66% |
| Stick Length | 108 in. 45.0 gms. | 48 in. 20.0 gms. | 36 in. 15.0 gms. |
| Total Weight | 51.4 gms. | 26.4 gms. | 21.4 gms. |
| Gms./sq. in. | .32 | .12 | .11 |

3/16-in. dia. dowel weighs 5 gms./ft.

1 1/2 mil plastic weighs 3.3 gms./sq. ft.

*Leslie L. Hunt, *25 Kites that Fly* (New York: Dover, 1971—reprint of 1929), pp. 41-44.

†Melville Bell Grosvenor, "The Tetrahedral Kites of Dr. Alexander Graham Bell," *Popular Science Monthly* (Dec. 1903), p. 131.

After 2500 years, someone finally invented

KiteWinder

The Chinese invented kites about 2500 years ago. But until now no one came up with a device which made it easy to get a kite up in the air and get it back down quickly and directly.

Now KiteWinder makes it easy for anyone to go fly a kite.

No running

KiteWinder enables you to reel in line fast enough (over a foot per turn) to raise the kite vertically to where it can catch the breeze. No need to run.

Level winding

A slot in top of the frame enables you to feed line evenly across all four paddles. Prevents strain and crossed line blockage.

Minimizes looping

Two tension bars in the slot help prevent the line from looping over paddles on to the shaft.

Right or left-handed

KiteWinder works equally well for right or left-handed persons.

Win kiteflying contests

Most kiteflying contests are judged on the basis of how far and how fast you can get your kite out. KiteWinder puts your kite into the windstream almost immediately; allows you to let out line as rapidly as the wind will pull it. Enables you to outfly contestants using old-fashioned reels.

Fewer lost kites

Many kites are lost because they fall some distance away when you have to bring them in slowly. KiteWinder flies the kite in rapidly and almost vertically to your hand. It pays for itself when you save one kite.

A mile of line

You can put almost a mile of line on KiteWinder. Enough to fly your kite out of sight if you wish. Or fly several kites in tandem.

KiteWinder is made of polypropylene reinforced with fiberglass and will withstand great pressure without distortion or buckling.

To discover the fun of kiteflying the easiest way ever, send a check or money order for \$12.95 plus \$1.50 to cover mailing and handling costs to KiteWinder.

Dealer inquiries invited.

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for \$ _____ N.Y. residents please add state sales tax.
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Address _____
State _____ Zip _____

The Kite Site

A COMPLETE KITE STORE

1075 Wisconsin Avenue, N.W.
Georgetown, DC 20007
(202) 965-4230

About Our Materials

We decided that good long-range interest in kiteflying would be helped by more people getting involved in, making their own kites. But although the new interest in kites has been greatly aided by new materials and new applications of old materials, there has not been a convenient single source for obtaining them.

We hope to remedy this by carrying the largest and best possible stock of materials geared solely to kitemaking. We think the types and brands we have selected are of the highest quality available. If you have any suggestions about what we should carry, please let us know.

A note about our prices:

A few of these materials you may be able to obtain more cheaply from various places. However, it will probably take a good bit of research, ordering (and paying shipping) from many different sources, talking to people who don't understand kitemakers' needs, and trying to convince wholesalers to sell in small quantities. We have tried to establish our prices to be fair to the customer while respecting good business practices. As our volume of sales of kite materials grows, we will pass our savings along to you.

Materials List

Rip-stop Nylon

Rip-stop nylon is probably the lightest and most durable fabric made. It generally weighs anywhere from .50 to 2.3 ounces per square yard. Our rip-stop is from Howe and Bainbridge, the noted sailcloth makers. It comes in two weights, 1.5 oz. and 1.2 oz. (Stabilkote III). We feel it is the best rip-stop for kites that you can buy. It is best fastened by sewing; 41" wide:
1.2 oz. in red, orange, yellow, green, blue or purple **\$3.50/yd.**
1.5 oz. in red, orange, yellow, green, blue, purple, white or black **\$2.75/yd.**

Tyvek®

Tyvek is the trade name for a DuPont product. Technically, it is a spunbonded olefin. Nontechnically, it seems like a stiff somewhat slippery paper (Type 10) or a kind of extra-strong paper napkin (Type 14). Type 10 is very strong and, in its heavier grades, almost impossible to tear unless "started" with a cut. Type 14 is softer and not as strong (though still very strong for its weight and softness) and also much more drapable (i.e., it conforms to the wind more easily). Both kinds are white and can be colored, painted and printed. Tyvek resists the elements well and can be sewn, glued or taped.
Type 10 (1073D), 51" wide, **\$1.25/yd.**
Type 14 (1422R), 56" wide, **\$1.00/yd.**

Mylar®

Mylar is the trade name for a

polyester film made by DuPont. It is transparent (semi-transparent if colored), extremely lightweight, and has a very high tensile strength. If it punctures, the tear will "run" unless mended with tape. It cannot be sewn and is somewhat tricky to heat-seal or glue. Cellophane tape or fiberglass strapping tape are the best means of fastening it. We carry ½ -mil thickness (what you usually find dragon kites made of) in a fluctuating stock of colors. We almost always have red, plus sometimes dark purple, fuschia, green or blue; 48" wide **\$1.00/yd.**

100% Polyester

This is a more common fabric, frequently used as a lining for coats, etc. It is lightweight, fairly porous, and a bit easier than rip-stop to cut and sew. Its chief virtue is that it drapes very well and is aesthetically pleasing, with a colorful "soft" look. (Many of the cloth dragons are made with this fabric.) It is 45" wide in red, orange, pale yellow, gold, lime green, emerald green, light blue, royal blue, purple or brown. . . . **\$1.80/yd.**

Tissue Paper

Our tissue paper is made by Crystal Tissue Co., the largest specialty tissue company in the U.S. and a leader in quality products. The tissue we carry is a No. 1 Standard colored Fourdrinier MF tissue. It is nonbleeding and quite strong (for tissue paper). It comes in a pack of 10 sheets, each 20 x 30" and each in a different color. We regret that we cannot change the color assortments of red,

pink, orange, yellow, gold, lime, emerald, turquoise, dark blue and purple.
..... **\$.50/pack of 10 sheets**

Silkspan®

Silkspan is an old model airplane paper that came into heavy use around World War II when silk became very scarce. It is heavier than tissue paper but also stronger. The well-known Stratton airplane kite kits include covering of Silkspan (medium thickness). We carry three thicknesses, all white:
Size OO (thin), 19½ x 24½" **\$.20/sheet**
Size GM (medium), 24 x 36" **\$.40/sheet**
Size SGM (thick), 26½ x 33½" **\$.45/sheet**

Vinyl

We occasionally stock vinyl in various colors and thicknesses. We decided not to offer it for mail order because of the lack of an inexpensive dependable supply but if a demand is indicated we may renew our efforts to build a regular stock.

Hardwood Dowels

The "old familiar" of kite-making. You can get them in any lumber yard or hardware store—but can you get them in 4-ft. lengths? All of ours are 4 feet long; diameters are:
⅛", each **\$.20**
⅜", each **\$.24**
¼", each **\$.26**
⅝", each **\$.35**

Aluminum Tubing

This stuff is either Reynolds or Kaiser aluminum in a grade of 6061 T6. For the non-technical, that's a good compromise between strength

and price. We carry 4', 6' and 12' lengths but cannot mail order the 6-ft. tubing unless you tack on an extra two bucks per order and promise not to tell us if it arrives bent out of shape. (And don't even think about the 12-ft. lengths. Sorry about this, but we can't find 6-ft. or larger mailing tubes.) Dimensions given are outside diameters by length; wall thickness .035":

- 1/4" x 4', each..... \$1.00
- 1/4" x 6', each..... \$1.50
- 3/8" x 4', each..... \$1.55
- 3/8" x 6', each..... \$2.35
- 1/2" x 4', each..... \$2.10
- 1/2" x 6', each..... \$3.15
- 3/4" x 4', each..... \$3.10
- 3/4" x 6', each..... \$4.65
- Wall thickness .049":
- 3/4" x 4'..... \$4.45
- 3/4" x 6'..... \$6.65

Fiberglass Rod

This is high-quality fiberglass made by Lunastran, the largest supplier of kite fiberglass in the country. It is heavier than aluminum, more durable and more flexible. (Same conditions for mailing apply as to the 6-ft. aluminum, though damage is less likely.) Sizes are:

- 1/8" x 3', each..... \$.50
- 3/16" x 4', each..... \$.80
- 1/4" x 4', each..... \$.85
- 1/4" x 6', each..... \$1.30

Bamboo

Outside bark. Light, flexible and strong. Interesting to work with. Good for fighter kite bows. It comes in strips (*i.e.*, already split) of 4' length:

- 1/16", each..... \$.12
- 1/8", each..... \$.14
- 1/4", each..... \$.16
- 1/2", each..... \$.20

Rattan

Looks like a dowel rod but is actually a round reed. *Very* light and *very* flexible. Good for dragon kite heads:

- 1/4" x 4 1/2", each..... \$.35

Spruce

Spruce is a straight-grain, lightweight strong wood. It is heavier than balsa but much sturdier. It has been used for aircraft (people-carrying type) for about as many years as aircraft have been around (*e.g.*, Howard Hughes's "Spruce Goose"). It works well for a variety of kites. 3' long:

- 1/16 x 1/4", each..... \$.24
- The following are all 4' long:
- 3/32 x 3/32", each..... \$.28
- 3/32 x 3/16", each..... \$.32
- 1/8 x 1/8", each..... \$.30
- 1/8 x 1/4", each..... \$.38
- 1/8 x 3/8", each..... \$.50
- 1/4 x 1/4", each..... \$.62
- 3/8 x 3/8", each..... \$.90

Basswood Strips

- Light, strong, evenly cut. Great for miniature kites; 22" long:
- 1/32 x 1/32", each..... \$.12
 - 1/64 x 1/64", each..... \$.12

"Surgical" Tubing

Clear plastic tubing is handy for connecting various round struts. There are many types and different grades of this tubing and although many are often called "surgical" tubing, *actual* surgical grade tends to be super expensive. What we have is plain old tubing, but of a very good quality.

- 3/16" ID x 5/16" OD..... \$.14/ft.
- 1/4" ID x 7/16" OD..... \$.24/ft.
- 5/16" ID x 9/16" OD..... \$.38/ft.

Vinyl Ribbon

For tails, both decorative and functional. In red, orange, yellow, green or blue; 1" wide \$.10/yd.

NOTE

Fabrics sold in 1/2 yd. increments only. Struts sold in listed sizes only. Tubing sold in 1 ft. increments only. Ribbon sold in 1 yd. increments only.



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Make check or money order payable to The Kite Site. Personal checks must clear the bank before shipping. Money orders and cashier's checks insure fastest shipping. For foreign orders, please remit in U.S. dollars and add \$4.00 for surface shipping.

- Note:* In case we are temporarily out of an *item*, should we (check one)
- back order return payment substitute (describe below)
- Note:* In case we are temporarily out of your *color selection*, should we (check one)
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Damage claims must be made within 7 days of receipt of merchandise. Prices subject to change without notice.

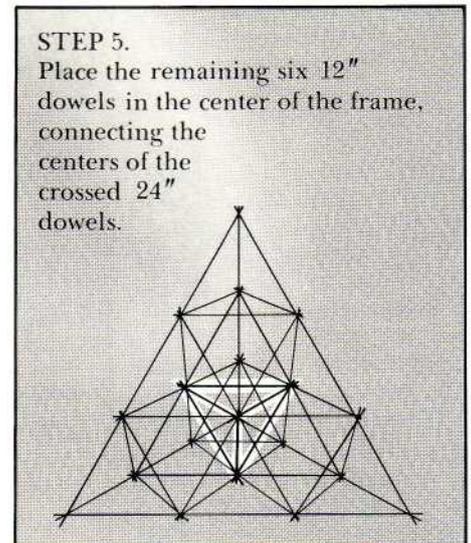
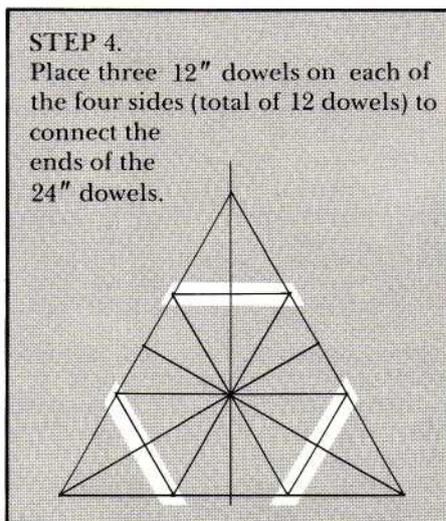
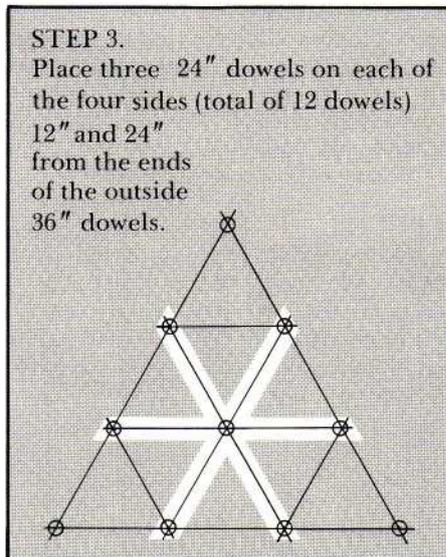
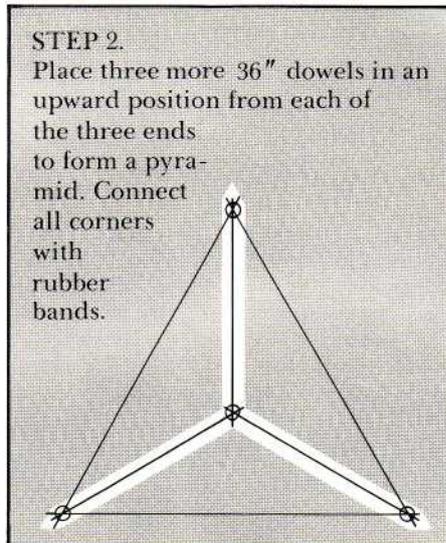
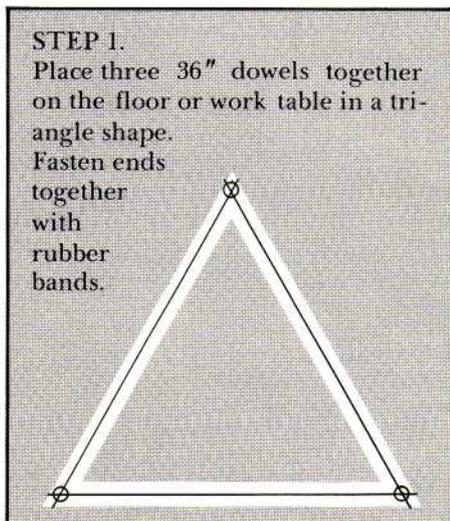
A Simplified Construction

By Ed Grauel

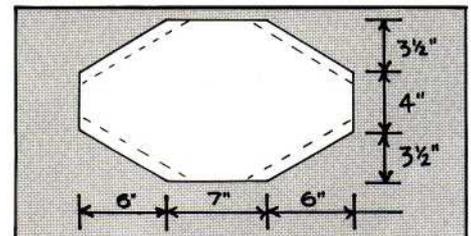
The tetrahedral kite has long intrigued kitefliers because of its unique shape and fine innate flying characteristics. For some reason, however, it has been considered a difficult kite to make. As a result, comparatively few dedicated fliers have one in their covey of kites.

My purpose here is to demonstrate that a most acceptable tetrahedral can be made simply and easily in a short time. The production secret is to use rubber bands to hold the ends of the spars, rather than to take the time necessary to tie the ends. Using rubber bands, the frame is demountable for packing and storing. The good-flying secret is the use of the lightest-weight dowels and coverings.

Start by acquiring 21 1/8-inch dia. dowels 36 inches long. Cut 12 of these dowels 12 inches in from an end, resulting in 12 12-inch pieces and 12 24-inch pieces. Cut three of the dowels into 12-inch lengths. The remaining six dowels are used in their original 36-inch length. You should now have 6 36-inch, 12 24-inch and 18 12-inch dowels. Put the frame together as follows:



The framework is now completed. Covering for the tetrahedral cells should be made of the lightest-weight plastic you can obtain—1.5 mil or lighter is the best. Different colors can be found in trash bags or painters' drop cloths. Make 10 individual covers 11 x 19 inches, in octagonal shape.



Select any one of the three vertical 36-in. dowels as the face of the kite and place the centers of the coverings against each of the 10 forward-facing vertical dowels, now separated into 12-inch sections. Fold the sides of the coverings over the lower and rearward connecting dowels on four sides and tape them in place.

Tie or connect the flying line directly to the top of the tetrahedron, where the three vertical 36-inch dowels meet, and you'll have made a fine-flying kite which will go up easily in a six mile-per-hour wind and will fly steadily and reliably until the wind exceeds 22 to 24 miles per hour.

To collapse for flat transport, remove all side-to-side sticks (one 36-inch, two 24-inch and three 12-inch).

Are tetrahedrals a piece of cake? Maybe, in the sense of tasty but crumbly. And true whether made from scratch or a mix. Here's a report on how two models flew.

Trials of the Tetras

By Mel Govig
Assisted by Rick Kinnaird

Working with boys and girls as I do, I have seen so few tetrahedral kites that flew even marginally well that I have avoided making them or encouraging kids to make them. There are many kites that I prefer. Images come to mind of quarter-inch dowel and newspaper models tipping over in the air like dying goldfish or bouncing along the ground.

For this issue, we made and flew Ed Grauel's design and assembled and flew a Synestructics Super TetraKite. I am not a convert to tetrahedrals, but they do fly, and fly well.

THE TETRAKITES™

Rick and I spent about 20 minutes assembling the four-cell TetraKite and another hour putting together the quadrupled Tetra sold as the Super TetraKite. We managed to keep them together long enough to fly them. The directions were good, and the bridling in particular, though it seemed odd, was correct.

The Tetra flew well at winds above eight miles per hour. At lower wind speeds, the rather top-heavy structure caused it to tip over to one side or the other.

The Super Tetra seemed to fly more steadily and to teeter a little less when the line was slacked or when the wind died. The flight angle was about 45 degrees, and the performance was very pleasant except for the landing.

Despite care and a very light landing, both kites were damaged when they touched down. The Super Tetra hit on a corner, breaking several sticks. Then the wind tumbled it over and broke two more. If I had spent about \$22 for it, this accident would have been very upsetting, especially since this kite is really a kit, involving put-together time. If I'd done it as a typical father-and-son effort, expectations would have been high. In this case, I was blessed with low expectations, and so was pleasantly surprised.

THE GRAUEL TETRAHEDRAL

This version took about 1 1/2 hours to build, as a two-man project (probably comparable to a one-man project), and it flew very well, with about the same flight characteristics as the Super Tetra. Rick pulled the kite to a 70-degree angle in an eight mile-per-hour wind. The kite flew steadily and high. It still had that annoying tipsy habit on a light line, but it never flew below horizontal, even on its side. It would quickly right itself (as did the Super Tetra) on a taut line—and it didn't crash.

We bridled it between the first and second cells instead of at the head. It was very unstable and yawed badly when bridled at the head. When these corrections were made, it was a very impressive kite.

What do I think of the tetrahedrals

now? I'm still a fighter kite man, but I know a good tetrahedral can be built and flown.

There is a lesson to be learned here, and it is best learned by building or assembling a tetrahedron and studying its construction and performance. There is usually a price to pay for any kite characteristic, and loss of efficiency is often the price of stability, or vice versa. Fighter kites and tetrahedrons can be seen as the poles in this continuous compromise.

Finally, I believe everyone ought to build or buy one—just one—tetrahedron. That should be enough to satisfy you that it flies, looks spectacular, is hard to carry, is not a snap to build, is often a snap, crackle and pop when it hits the ground. After building one, anyone who then builds a second shows a regrettable tendency toward masochism.

T-SHIRTS

Top-quality, American made 100% cotton. Red with black print or blue with white print; S, M, L, xL.

\$5.50

plus 50¢ shipping and handling; Maryland residents add 5% sales tax.

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Introducing the beautiful...

the ultimate
state-of-the-art in
single-line maneuverable
and fighting kites.



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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 a spine of graded cedar, 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: \$18.00, 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!

To order, fill out form and send today to:

GRANDMASTER™ KITES
2825 N. Commercial Ave., Suite 11
Portland, Oregon 97227
(Telephone: 503-280-3001)

Note: Shipping charges apply to continental USA only. For foreign orders, please remit 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 \$18.00 | **Custom order price each \$28.00 | Total price |
|--|---------------------|---|-----------------------------|-----------------------------------|-------------|
| | | | | | |
| \$3.50 shipping, handling and insurance, per kite | | | | | |
| Grandmaster recommended line: Three-ply waxed linen, 1000 feet, \$5.00 + 75¢ shipping | | | | | |
| Total | | | | | |

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

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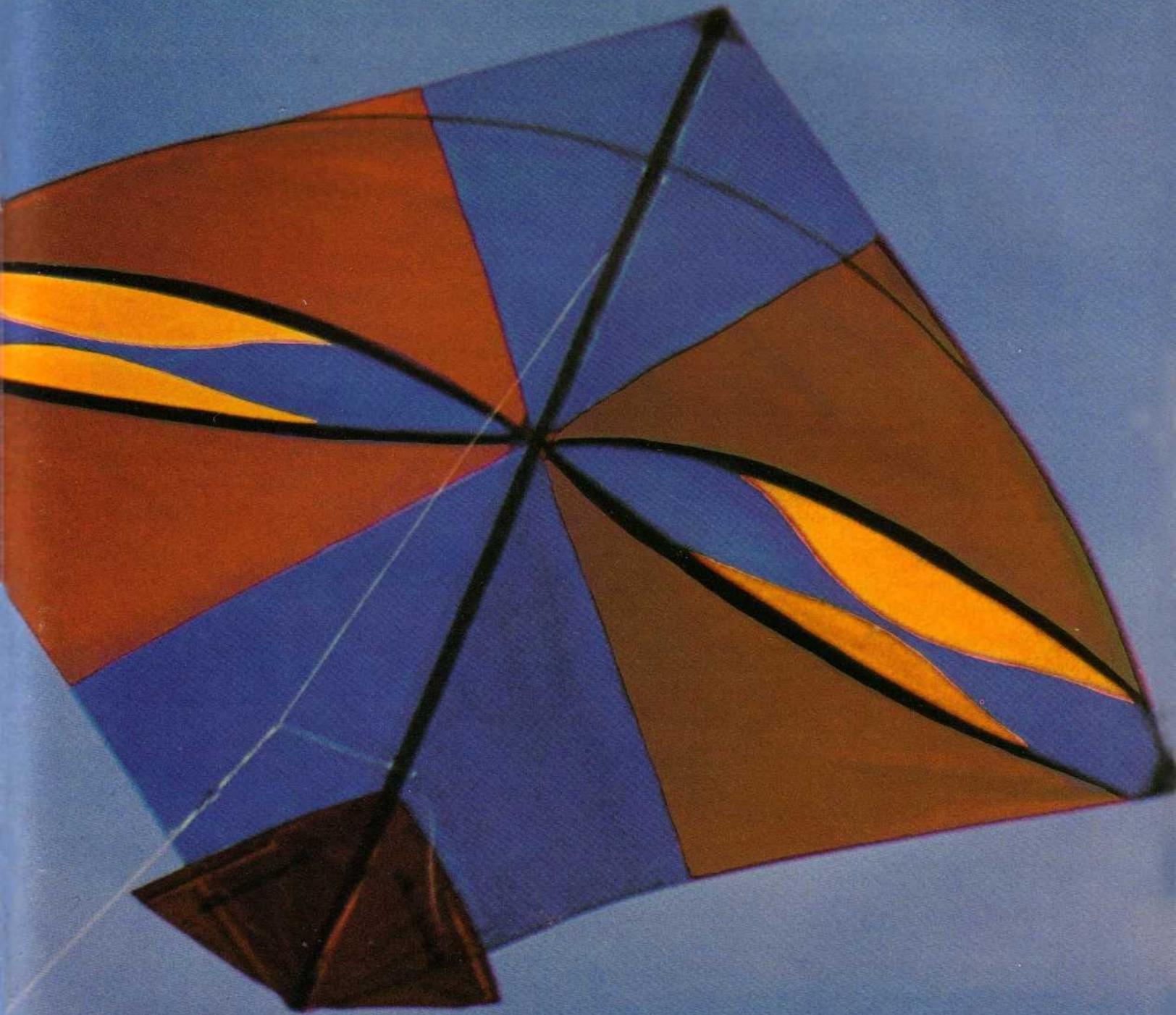
*Regular orders will receive one of the illustrated designs or a new design.

**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 are sold with an unconditional guarantee (providing the kite has not been mistreated). 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 \$18.00.

GRANDMASTER™ KITE

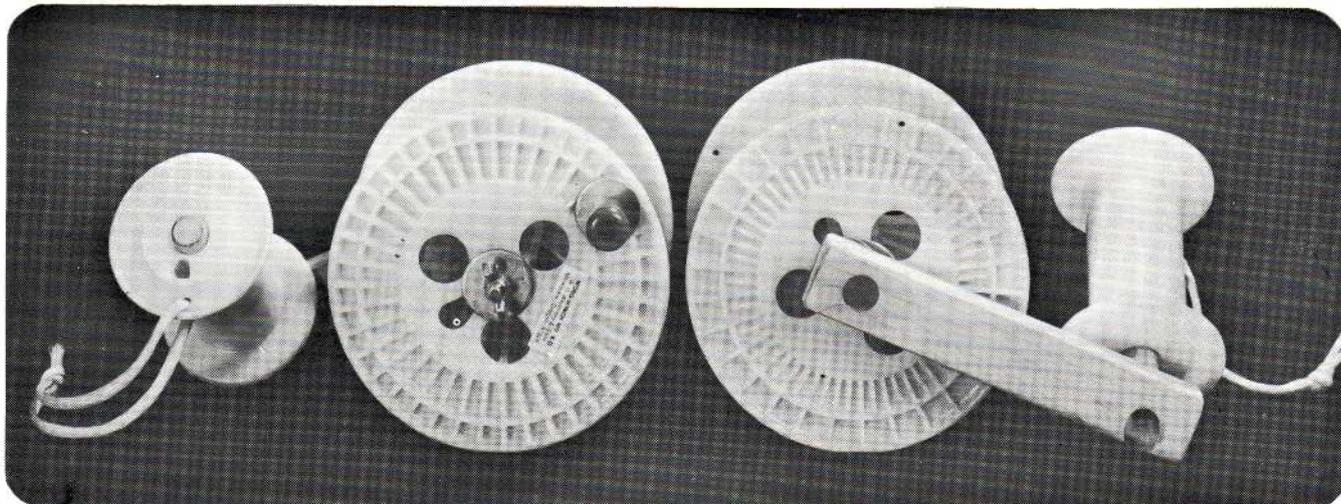


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Note our low prices. We can offer these prices because we use recycled (top-quality) spools.



Mono-winch No. 6D

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

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

Fly-from-the-belt capability.

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

Drag brake that can be held for a light drag or set for full lock. A first in kite reels. **\$16.00**

Mono-winch No. 6M

Similar to No. 6D, but without a drag brake and with a slightly lighter spool weight (see above). Quick spool change feature permits spools to be changed in seconds without tools. Ideal for Kitefishermen. **\$10.50**

Extra spools for No. 6M

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

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

| Model No. | Re-wind Speed (MPH) | Mono-Filament Line Capacity (in Miles) | | | | Price |
|-----------|---------------------|--|-------|-------|-------|---------|
| | | 10 lb | 15 lb | 25 lb | 30 lb | |
| 5 | 1.5-3 | 2 | 1 | X | X | \$4.50 |
| 6 | 2-4 | 3 | 1.5 | X | X | \$6.00 |
| 6M | 2-4 | 3 | 1.5 | 1 | X | \$10.50 |
| 6D | 2-4 | 3 | 1.5 | 1 | 3/4 | \$16.00 |

Line not supplied

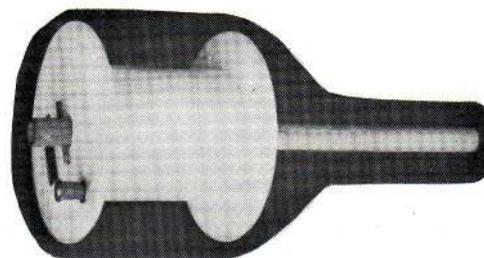
THE TWINGLE (Not shown)

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

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Sidewinder No. 6

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



Sidewinder No. 5

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

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

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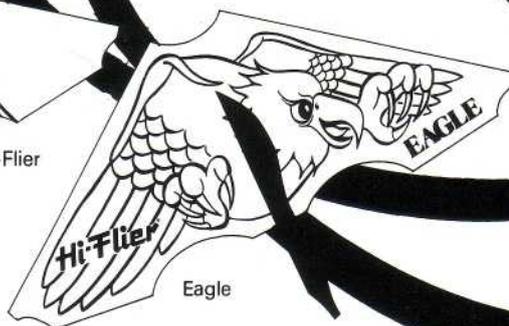
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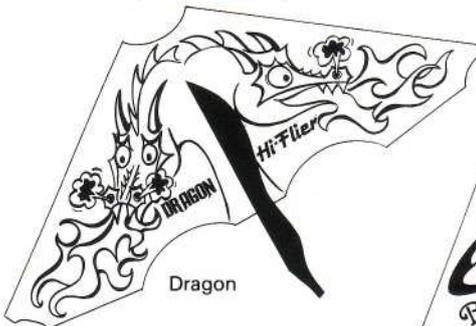


Eagle

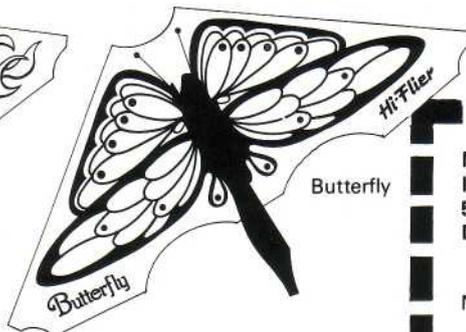


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Tips for Tets and how to make them grow

By Michael S. Riley

If you wish to build a tetrahedral kite from scratch, I would give two words of advice.

First, you need not be satisfied with just the usual overall pyramid shape. Alexander Graham Bell himself discovered that the wider versions of his kite had much greater stability.

Second, consider the advantages of flexible plastic tubing for the joints. Tubing will make it easy to experiment with different shapes or to add on more cells at a later time. It also makes the kite easy to repair and to fold up for storage.

Materials and Construction

With some luck, you can get your dowels, plastic tubing, and nuts and bolts all at the same hardware store. If not, look for tubing under *Plastics* in the Yellow Pages.

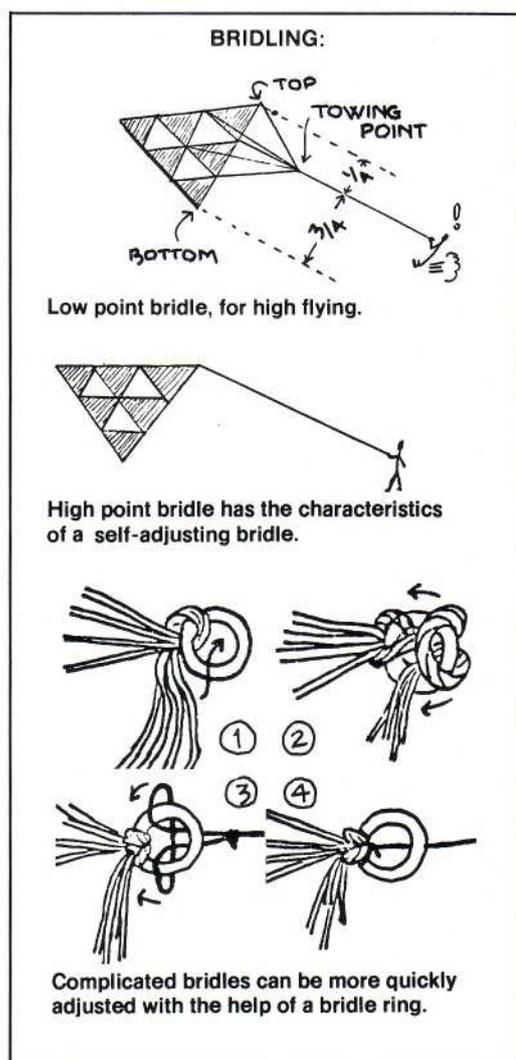
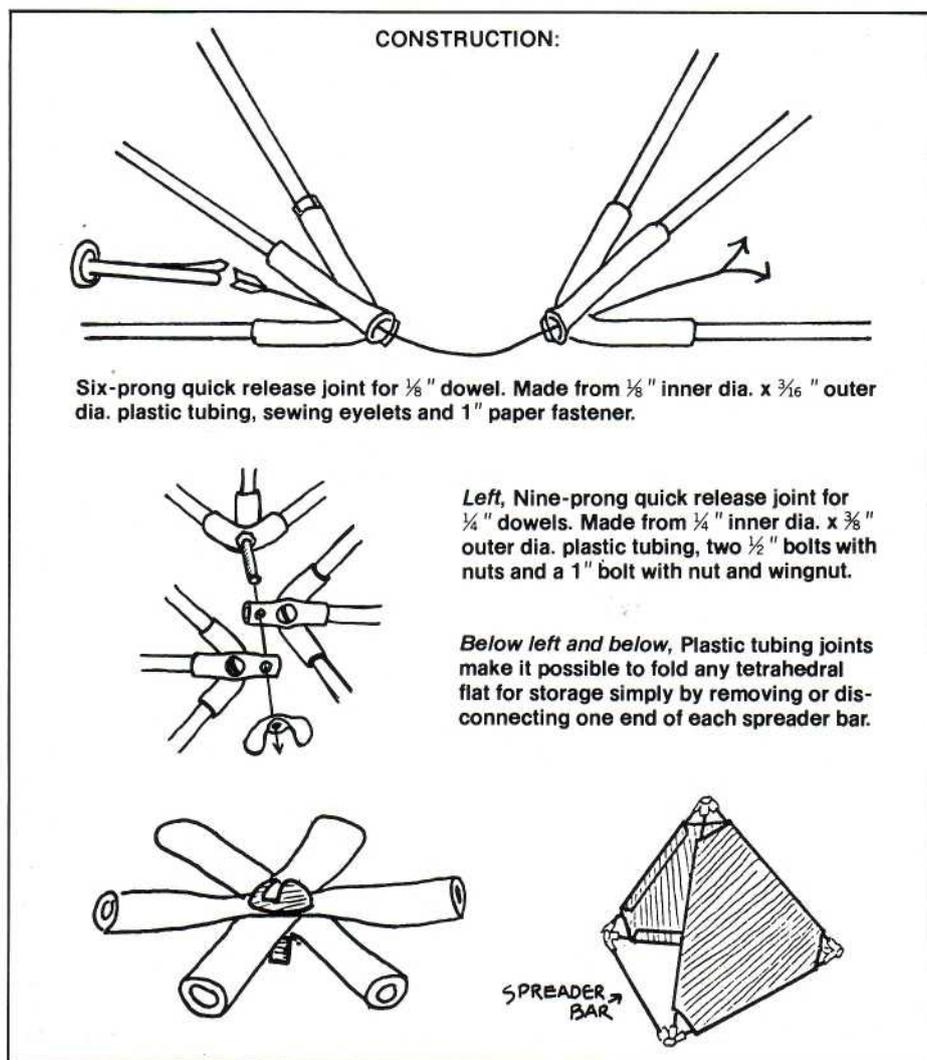
Holes can be made in the stiff type of plastic tubing with a drill. The softer kinds require a paper punch or an eyelet punch or a flame-heated nail (don't breathe the fumes!) Be sure the tubing is long enough to hold the dowels in either hot or cold weather. Join the tubing to itself with nuts and bolts, or leather rivets or sewn eyelets.

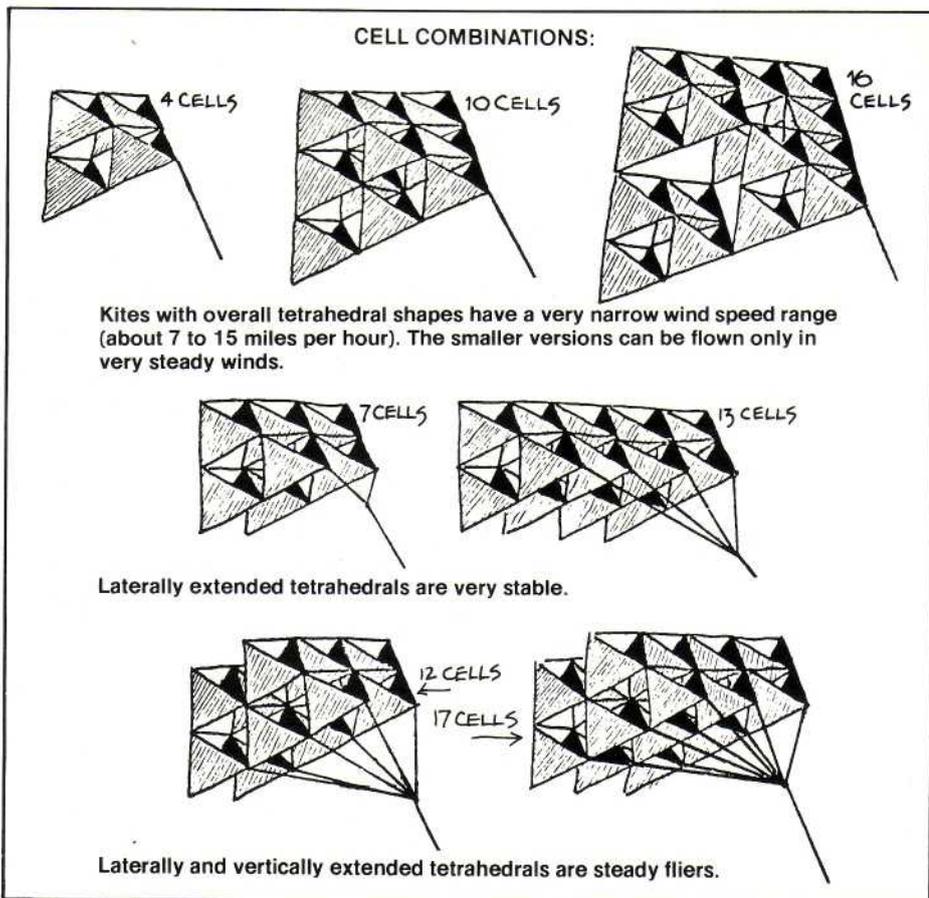
Maximum dowel length should be 36 inches for dowels of 1/4"-inch dia. and

12 inches for dowels of 1/8"-inch dia. These lengths imply that you want lightness rather than strength. Since the plastic tubing makes it so easy to replace broken dowels, I always use the maximum length and take along some extras when I fly.

Just about any light, non-porous cloth or plastic can be used for the covering. The bright-colored remains of a retired sport parachute would be ideal, but trash bag plastic will do. Don't glue or tape the covering directly to the dowels. Let the dowels slide out in case a repair is needed.

Any of the kites that are pictured here can be folded flat for storage by disconnecting one end of each spreader stick. They can be folded into even smaller packages with the help of





quick-release joints. My nine-foot, seven-celled tetrahedral has four release joints. When they are undone, the kite becomes a long string of cells, each connected to the next at only one point. I can then disconnect the spreader sticks and fold the whole thing into a 3 ft. x 3 ft. flat package. Release joints also make it easy to experiment with different overall shapes.

Cell Combinations

Most of the tetrahedral kites that I have built fall into one of three categories: regular; laterally extended; or laterally and vertically extended. The largest kites I've made in each category are of 16, 19 and 24 cells respectively. The 24-celled kite was used to lift a movie camera. The 19-celled wide kite had to be weighted to keep it horizontal.

Bridling

Pyramid kites and wide kites can use

high as well as low point bridles. High point bridles have the advantage of simplicity of construction, and they permit the kite to tilt forward during a strong wind. The forward tilting increases stability and reduces pull on the flying line. This forward tilt also causes the kite to fly rather close to the ground.

If a higher flying angle is desired, a low point bridle can be used. Large kites with low point bridles require a large number of bridle lines to distribute the stresses evenly throughout the kite. I usually align the towing point with a point two-thirds or three-quarters of the way from the bottom of the kite to the top (see illustration). Make sure the towing point is centered horizontally and that all bridle lines have reasonably equal tension.

Launching

Launching a large tetrahedral is not easy. One false move and you've got a

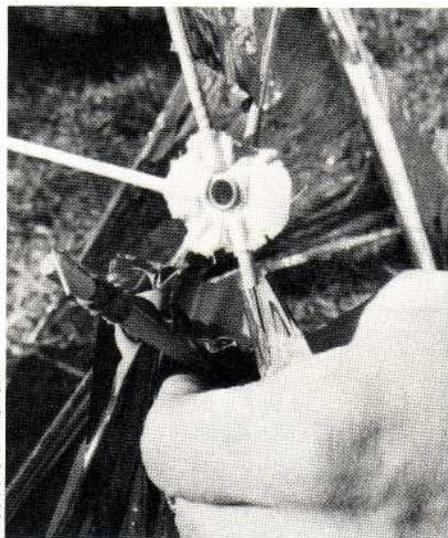
bag full of sticks at the end of your string instead of a kite. I usually set the kite on the ground about 25 feet away and pull on the string until the kite tilts up toward me. Then I wait for the best wind and either pull in rapidly or make a short run. I do *not* recommend that you let anyone hold the kite while you are trying to launch it.

OTHER SYSTEMS FOR TETRAHEDRAL JOINTS

1. Plastic drinking straws can be joined with staples rather than thread. This system makes the drinking-straw-and-tissue-paper tetrahedral slightly more do-able and durable. Plastic straws are less apt to bend and break than paper ones. This system is easy enough for kids to make, but still results in a marginal flier.

Idea of Mel Govig

2. Two circles of cloth stitched criss-cross in six spoke sleeves and grommeted in the center make nice joints.

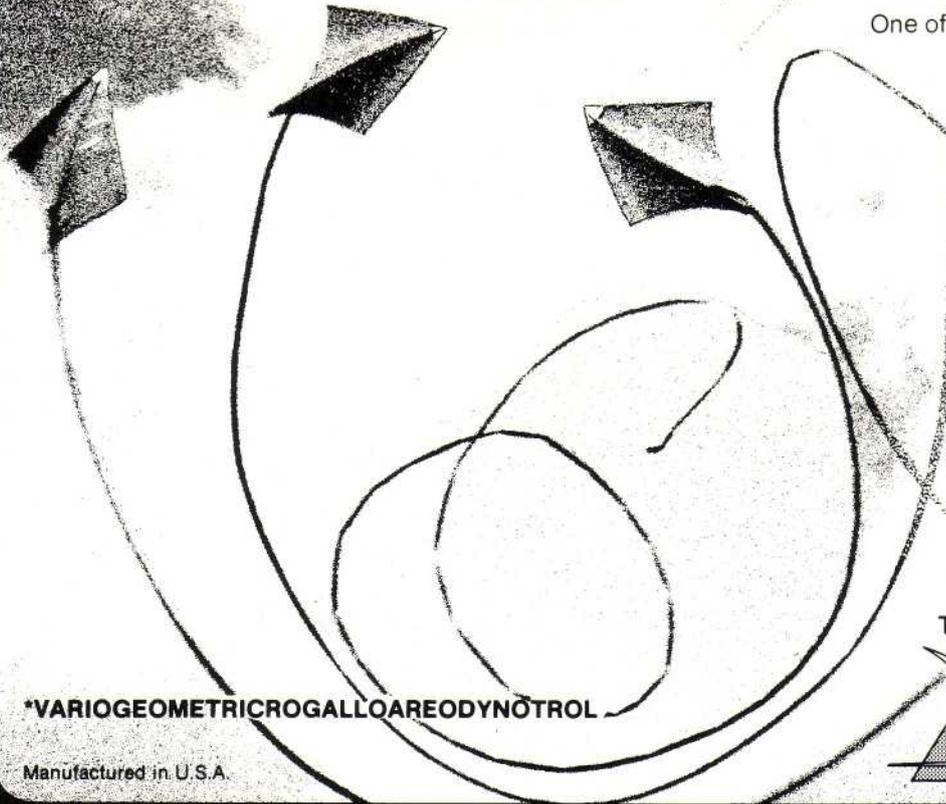


Theodore L. Manekin

Any of the sticks can be easily slid in or out to make the kite collapsible for flat transport. This system makes slightly more flexible, hence slightly more crash-resistant corners.

*Idea of Bill Jones
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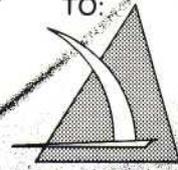


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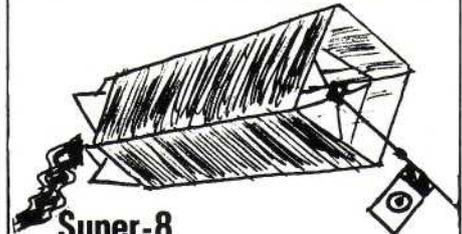
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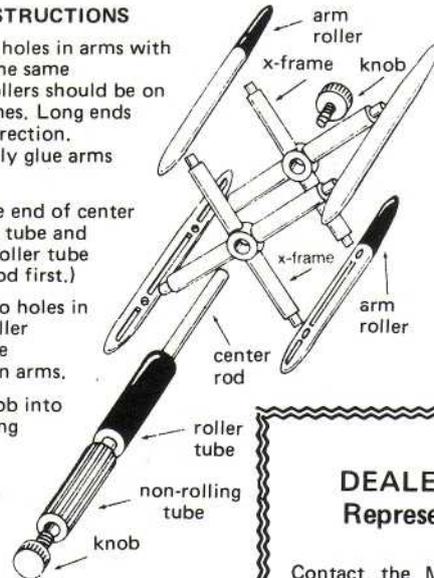
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ASSEMBLY INSTRUCTIONS

1. Insert x-frames into holes in arms with roller ends pointed in the same direction. Arms with rollers should be on opposite sides of x-frames. Long ends should point in same direction. (For permanent assembly glue arms into holes.)
2. Screw knob into one end of center rod. Slide on non-rolling tube and then the roller tube. (Roller tube may be put on center rod first.)
3. Insert center rod into holes in x-frames. Center rod roller should point in opposite direction from rollers on arms.
4. Screw remaining knob into center rod. Tie kite string around all 4 arms.
5. Holding center rod roller in right hand and arm roller in left start cranking kite line onto completed reel.



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MAGIC KITE REEL

STATESIDE

News From Here and There

CONNECTICUT

John DeGange sends news:

Steps toward organizing an association of kitefliers in Connecticut were taken on October 19 at a meeting in Mystic.

Twenty-one prospective members attended the meeting, which was hosted by the Ben Franklin Kite Shoppe.

A staff of temporary officers was elected, headed by Douglas Allen, a medical laboratory technician at Pfizer Inc., as President.

Other officers are: Vice-President—Frank Intelisano, owner-manager of the Ben Franklin Kite Shoppe; Treasurer—Ralph Edwards, comptroller of the Mystic Seaport Museum; Secretary—Virginia Palumbo, retail sales manager of the Ben Franklin Kite Shoppe.

It was voted that the temporary officers be a committee to survey and

make recommendations regarding a name for the organization, bylaws, a program of activities and other matters pertaining to the establishment of a permanent organization.

Meetings are scheduled for the first Tuesday of each month, and interested kitefliers in the Connecticut-Rhode Island area are invited to come or call the Ben Franklin Kite Shoppe, (203) 536-0220.

HAWAII

Lincoln Chang, dean of Hawaiian kitefliers, died on October 27, 1977, at the age of 65 after a long illness resulting from a fall. Lincoln was visited frequently in the hospital by his kiteflying friends.

Lincoln Chang's grandfather was born in China but Lincoln was born in Honolulu, where he was a housing contractor until he stopped for health reasons and became a caretaker of an

old Chinese temple. He lived as a bachelor in a humble house behind the temple where he was surrounded by photographs of his brothers and their children—and his kites and kite trophies.

He made his first real kite in 1957 to enter the first city kite contest, and was beaten. He went home and worked on his kites and came back in 1958—and won.

In a newspaper article, Lincoln was quoted as saying, "What I am doing is keeping alive the nearly extinct art of my ancestors." But he did not acquire these skills from an instructor. He was essentially a self-taught man.

"I get most of my ideas for kites from the old fogeys at Aala Park," Chang said.

"There are men from the old country at Aala Park who can remember seeing some of these kites when they were children. They can remember the shapes well enough to sketch them

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You will receive full drawings and specifications.





John H. Hartscock

LINCOLN FAI LIN CHANG

pickup.

Wayne Baldwin wrote to us about Lincoln Chang:

"Of all the kitefliers, builders and teachers I have known over the years Lincoln remains among the best. I feel so fortunate to have been included among his students and to have been his close friend these many years. Joining AKA was one of the big events in his life, since it gave real meaning to his avocation. His magnificent talent for design, building and flying was shared with his friends, so Lincoln's kites will continue to fly at Kapiolani Park through us."

MARYLAND

Last year three fearless kites went ice skating on a local frozen pond. We saved the report of that occasion for this, the proper season; by Mel Govig:

10:00 A.M., New Year's Day, 1977:

Rick Kinnaird is on the phone: "Have you got a big Parafoil?"

"Well, yes and no." The J7.5 Parafoil is still not repaired from a near-fatal bout with a 50-foot tree. I have the J15, but no line to fly it on a day like this. What does this guy want?

The temperature is near zero, the winds are gusting to 30 to 40 knots and I'm looking for a quiet place to reflect on the sins of 1976, especially the last few hours of the Bicentennial.

Rick again: "The J15 will be perfect. How about ice skates?"

"Well, yes and no." Yes, I have a pair of skates which I judiciously put far out of sight two or three years ago, after I realized that my childhood memories of myself as the Hans Brinker of northern Illinois were never going to be realized at age 40.

"We're going ice skating," said Rick.

"Ice skating? Who's going ice skating? And what is ice skating?"

"I don't know, but it sounds like fun!"

"Well, I don't know, I have to clean my closet." (That closet has been neglected for three years.)

"Okay, let's make it 1:00 o'clock. Who else do you think wants to come?"

"Who else?!"

"How about Pete Ianuzzi and Dale Fleener, if he's still in town."

"Do you want to call them?"

"Okay, 1:00 o'clock at your house!"
1:00 P.M., New Year's Day, 1977: Rick Kinnaird, Dale Fleener and I depart for Woodlawn pond, having fortified

in the dirt.

"But that just gives me the shape. That doesn't tell me how to make it so it will fly. They can't tell me that. I have to find out on my own. I have to experiment and perfect the design."

That challenge filled Lincoln's days — making kites, shopping for materials, testing his designs every weekend in Kapiolani Park—and teaching his skills to many proteges. Though recently somewhat impaired by a stroke, Lincoln continued to come out to the park, driving his old battered

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News From Here & There

... Continued

ourselves against the cold with longies, extra pants and sufficient *spiritus medicus* to survive. Pete Ianuzzi knows where we are headed and will join us later. Dale elects to stand on the bank and record by camera:



Dale Fleener

Rick surprises us all; he seems born to the blades. He quickly gets on the ice and unfurls the J15. In the meantime, I force myself into skates and onto the ice and spend the next 45 minutes relearning how to remain upright. Pete has arrived by now, and after some weak protests about no skates and poor ice, joins me in the learner's corner.

After some initial problems (trying to keep the J15 inflated on a short tether, to fly a cantankerous kite and at the same time keep our balance, and to avoid cutting the kite or the lines with our blades), we get off two or three successful tacks across the pond.

The day ends on a predictable but unfortunate note with Pete taking one too many dramatic falls and ending up with a nasty cut and a mild concussion where his head struck the ice. I have some bruises that later make me select the positions in which I sit

and sleep carefully. Rick seems unhurt and ready to try again. And Dale wisely avoided all hazards but cold.

For adventurous souls who might want to try ice skating, a few tips:

- The kite does not improve your skating ability, so be sure to have your skates under control before you add a kite.

- If you don't have faith in your skating, better put your faith in a cyclist's helmet and several layers of heavy pants.

- Use a fairly low angle, heavy drag kite. The Jalbert J15 we were using was probably too efficient the way it was bridled to make a good sail. I suggest low-angle bridling and/or a large box or Conyne or flat kite instead.

- Smooth ice makes a smooth ride; and the reverse, rough ice is bad news.

- Let the kite out just enough to gain control, but not so far that trees and buildings become obstacles.

- Don't sail directly with the wind. When you start to move, the kite goes out of control. It's better to tack on a 90-to 45-degree angle to the wind, keeping a steady tension on the line.

All in all, our evaluation of the sport was that it has great possibilities for those who plan ahead. We would very much like to hear the results of others' attempts at ice skating.

MASSACHUSETTS

During the week of January 14 to 22, 1978, a round-the-clock reenactment of the original transatlantic radio broadcast by Guglielmo Marconi in 1901 will be conducted by several amateur radio stations. For kite history buffs, this is important because the first message was received by an aerial suspended by a kite (a Baden-Powell Levitor, to be exact).

After two years of planning by the Barnstable, MA, Radio Club, the event will involve stations from such distant spots as Italy (two stations, one in Marconi's home town); Poldhu, Cornwall, England; and Signal Hill, Newfoundland. The celebration has been timed to commemorate this piece of radio history now, while people are still living who were involved with the first primitive sets. Control operator of the program is Robert J. Doherty, W1GDB, R.F.D. 1, 14 Pine Street, Sandwich, MA 02563. The Governor of Massachusetts has proclaimed the time as Marconi Week, and President Carter will send a message to be broadcast

during the period. The original call sign of Marconi, KM1CC, will be used.

For its part, AKA has sent official taped greetings to the Newfoundland and Massachusetts clubs, and also a 12-foot copy of the Baden-Powell Levitor kite to be used to carry a wire and receive and/or transmit messages.

Why not a chapter of AKA in the Boston area? Gregory and Phyllis Apkarian are asking that question, and would be pleased if members in or near Beantown would get in touch with them: Box 414, West Side Station, Worcester, MA 01602, or telephone (617) 799-0816.

NEWYORK

Wyatt Brummitt writes:

September has been rotten *in excelsis* hereabouts, with good flying days countable on the thumbs of one hand. But during the summer we had a very good time. Probably the most sensational event of the season was the launching of Ed Grauel's 20-(count 'em) foot closed-keel delta wing. He sewed the thing on one of Mr. Singer's very small machines. In the air the kite behaved like a very dignified whale—which isn't to say that it was a poor flier. It was really good, attaining a high angle, a flat attitude and excellent poise. The woodwork was all heavy doweling, with brass-sleeve connectors. The whole thing disassembles and rolls up into a neat bag about four feet long and as capacious as an ordinary golf bag. The rip-stop nylon is black and white, so the kite got dubbed The Pregnant Killer Whale—pregnant because of the sometimes distended ventral stabilizer, which is closed at the rear.

Ed Grauel flies his Whale, Rochester, NY.



Wyatt Brummitt

OHIO

The Ohio Society for the Elevation of Kites (OSEK) continues apace, whatever the weather.

The Grape Pickers' Kite Fly at Wil-lo Lake Park in Geneva brought rain along with the wind. But according to the OSEK newsletter, "Shoot the Breeze," "a number of members had a pretty good time."

A September workshop, "Kite-making Made Simple," at the Public Library in University Heights, had a good pupil-to-teacher ratio for making deltas and Eddy-type kites.

A party for fund-raising and making new kite friends was next on the agenda as we went to press.

PENNSYLVANIA

Pat Hammond, consummate kiteophile of San Antonio, TX, exhibited kites in the atrium of the Children's Hospital in Philadelphia in October. She also gave a talk and workshops for both children and hospital personnel.

TENNESSEE

Dr. Harry S. Abram, a well-known psychiatrist and ardent kiteflier, died suddenly of a heart attack at the age of 46.

"His services to the community, to the students and to his profession will serve as a lasting testimony to the fine work of a distinguished scholar, teacher and humanitarian," said Dr. John E. Chapman, dean of the Vanderbilt University School of Medicine, where Dr. Abram had taught as a professor.

He was active on many faculty committees and in professional organizations, was a favorite teacher with the students, and a respected author of

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Easily made from plastic sheet, dowel sticks and adhesive tape. Flies beautifully and easily. Complete kite, ready to fly, hand-made as described above, \$7.50. Incomplete kite, with no sticks, \$5.00. Incomplete kite, with no assembly instructions, \$3.50. Write for more details. See U.S. Patent #3963200 for description of kite. Bennett Arnstein, 3049 W. 8th St., Los Angeles, Cal. 90005.

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News From Here & There

... Continued

over 50 scientific papers and three books. His writing also included the topic of kiteflying, and he was an authority on its psychic values.

Applauding an editorial that had appeared in *Kite Tales* (predecessor to *Kite Lines*), he wrote a letter which appeared in the Spring 1975 issue, saying:

"We kitefliers should get over our inhibitions and indeed be proud of our ethereal pastime. Since I took up the sport some five years ago, I have found it a great form of psychotherapy—combining relaxation, communing with nature and a means of escaping the stresses and strains of everyday living. Although I receive the usual amount of flack from others (*e.g.*, 'Did you catch a big one?' referring to my large tuna reel and pole pointed toward the sky), I also find that others catch a glimpse of the esthetic beauty involved in kiteflying, as well as its bringing back pleasant memories of their youth."

George P. Turner, a good friend of Dr. Abram's, wrote from Nashville:

Dr. Abram was much in demand to make speeches in various parts of the world and he always carried a supply of kites and managed to get in some kiteflying wherever he was. One of his favorite flying places was Nantucket which he visited frequently and where he had a number of kiteflying friends. He also flew kites with AKA members in such far-away places as Nova Scotia and Hawaii.

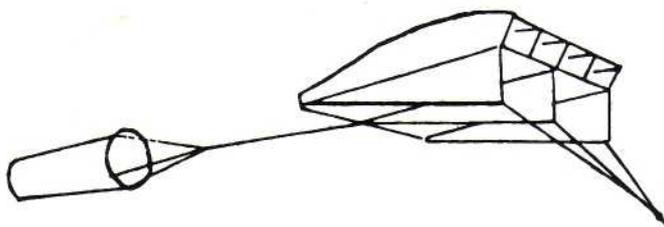
Both Dr. Abram and his family were dear friends of mine. His passing was a deep loss to me and will leave a void in the ranks of all kiteflying enthusiasts.

WASHINGTON

Margaret Greger sent word from the Pacific Region Aerospace Conference, October 14 to 16, Orcas Island, WA. Most of the participants were teachers who use aerospace subjects as a base for teaching the whole curriculum. Margaret, who thinks the whole curriculum could be taught through *kites*, was there and gave several kite workshops.

All three Seattle TV channels showed up to televise a hoisting by the Great

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***UNDER NORMAL USE**

Winds Kite Shop of a 16-foot carp kite up the flag pole on top of Smith Tower, a local landmark. It's a copyable stunt for any kite PR-seeker living in a town with a tower.

The Washington Kitefliers Association and the sport of kiting rated a big feature article in *The Seattle Times* on September 24. As if that weren't enough exposure, the club has put on three half-time shows at University of Washington Huskies football games. Their 100-kite train is becoming almost ubiquitous in Seattle. At the U.S.C. game, disaster struck. They had put up 118 kites on one line, a new Seattle record, when suddenly the top 50 kites went sailing out of sight! Last we heard, they hadn't been recovered.

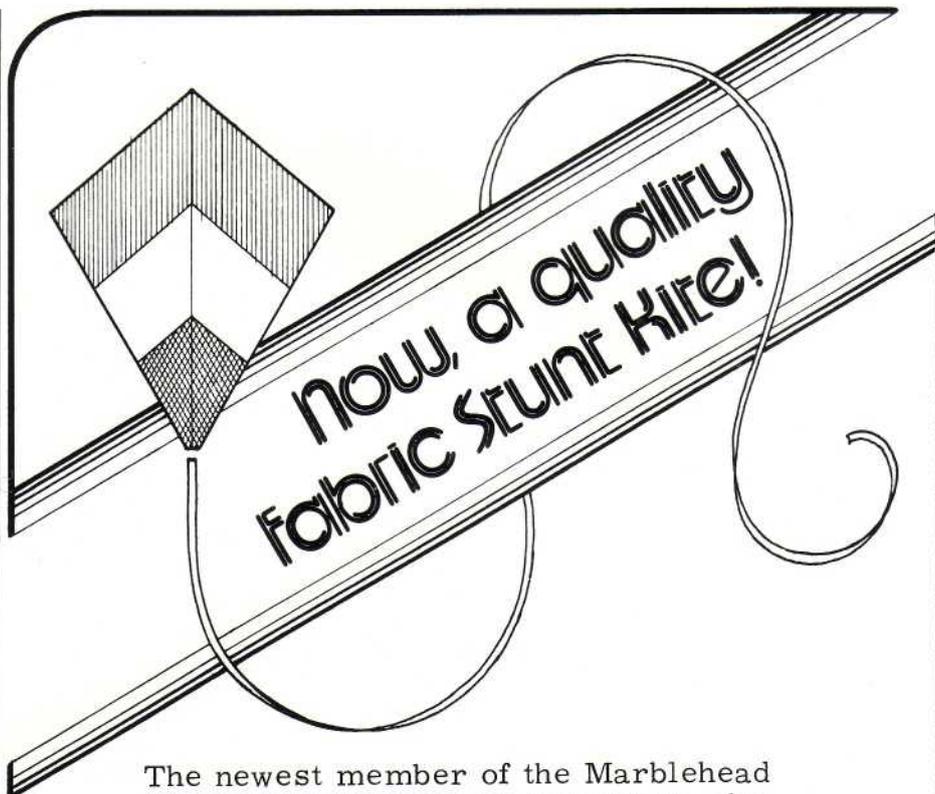
The chapter continues to hold its weekly flies. One of the favorite spots is Gasworks Park. Worrying that their long lines out over Lake Union could snag low-flying aircraft, newsletter editor Jack Van Gilder wrote to the Seattle Parks Department suggesting that a sign be placed on the hill limiting kite line to 300 feet when flying over the water. The Parks Department consulted with the City Attorney, who said that the only legal language they could use would be to ban all kites! "Us and our Big Mouths," Jack is saying now. A flurry of telephone calls has influenced the Parks people to put the suggestion on the back burner for the time being. Meantime the kites continue to fly weekly, and are looking forward to their big New Year's Day Fly at Golden Gardens Park.

News from Here & There continues . . .

Jeffie Hepworth holding down a trio of sleds at a windy Seattle kitefly.



John F. Van Gilder



The newest member of the Marblehead family of handcrafted fabric kites, the STUNT KITE adds a new dimension to kite flying. With its dual controls it can be made to loop and soar, making an incredible variety of intricate patterns in the sky with its long satin tail.

Constructed of light, strong ripstop nylon sailcloth in three brightly colored panels, the STUNT KITE is 40" high and has a 25' long removable satin ribbon tail. Flight is controlled by two kite lines attached to twin bridles. Details include solid birch dowels, brass rings, brass snap-swivel tail attachment, cotton web dowel pockets and our usual painstaking craftsmanship.

The MARBLEHEAD STUNT KITE is the sixth member of the family, joining our familiar line of deltas, stars, dragons, windriders and diamonds. The popular diamonds are available in colorful prints or with a wide variety of hand-sewn appliques.

The STUNT KITE is \$14.50 ppd. Or send for additional information on the full line of Marblehead kites. Dealer inquiries are invited.

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"What a magnificent year we have had in this country," waxed Clive C.O. Rawlinson in one of over 25 kiting reports, letters and newsletters he has sent to AKA in the past 10 months.

"In this our Royal Silver Jubilee Year, celebrating Queen Elizabeth's reign, kiting has taken sudden great strides forward in many directions."

Tracing the cause-and-effect relationship of such phenomena is always difficult, but perhaps it all began with Peter Powell's stunter kites. The sporting value of dual-line maneuverable kiting, active rather than passive, was recognized and taken up in every shire in England. It was not long before imitators of the Powell (there are now 17 of them) were on the market, not to mention other kites flown by dual-line control, such as deltas and the entirely new Flexifoil.

This innovative kite shatters most preconceptions of the form tethered aircraft should assume. Like an air mattress in appearance, the Flexifoil has a fiberglass rod and gauze-covered vent in the leading edge, and assumes varying negative dihedral depending on wind speed. It is also something of a stunter and is flown from a two-line control bar. Speeds of 80 miles per hour and more have been reported for the Flexifoil, which was designed by two artists, Andrew ("Wilf") Jones and Ray Merry. It is now being marketed in the U.S. for about \$76. Flown in series and in various color combinations of rip-stop nylon, the kite is one of the more mesmerizing of the many unusual craft that are filling English skies today.

Fast on the heels of the new kite designs came man-lifting systems developed simultaneously with some muscular kites, such as the Cody-type boxes. David Pelham's *Penguin Book of Kites*, further fueled the up-draft. With all this, the urge to organize has grown, too; several local clubs are now thriving (including Clive Rawlinson's doughty Essex Kite Group) and at least one promise to start a European publication appears to be near fulfillment.

Clive Rawlinson has not been the only reporter of the trend; mail from England has been heavy and jumping with exclamation points. For example, Bruwer Van Graan wrote of the May

ENGLAND'S JUBILEE YEAR: A RAPTURE OF KITES!

Photographs by Ron Moulton, British Kite Flying Association

Day National Rally at Old Warden airfield:

"One of the highlights of the day was a demonstration by Angel Kites Inc. Six keelless deltas were flown in train on two control lines and they pulled a three-wheeled vehicle at a fast pace around the flying area. In July an attempt is to be made to cross the English Channel in this same vehicle, or should I say 'modern day kiting chariot' with suitable modifications for floating."

This was indeed carried out by Keith Stewart sailing his nine-foot catamaran by kite power, called Amphikiting.

Bruwer continued, "Another first for me was seeing a Marconi-rigged kite flying beautifully. Several Cody kites were flown, the largest having an 18-foot wingspan. Made from rip-stop nylon and aluminum tubing, these kites have yacht-type fittings to tighten the sails. I had seen an original Cody at the Royal Air Force Museum in Hendon, but the modern day construction is so much better.

"For most of the day I was the only one flying a rotor kite. Late in the afternoon another joined in. I have been making rotors from styrofoam which I cut with a hot wire cutter."

Despite what Clive Rawlinson described as "typically mixed English weather," the Rally of several hundreds, from all over the country and abroad, flew what Clive called "one of the best selections of kites that I have

ever seen assembled on any single occasion."

Later in May at Parliament Hill Fields, Hampstead Heath, London, the First British Kite Championships were held, sponsored by Japan Air Lines and the Paris-based *International Herald Tribune*. According to Clive Rawlinson, judges for the event were: Tal Streeter, artist from New York state and author of *The Art of the Japanese Kite*; David Pelham, author of *The Penguin Book of Kites*; Ron Moulton, Founder of the British Kite Flying Association; and Peter Powell of Peter Powell stunter kites. Clive continued:

"The weather was very good for what was to be an action-packed day. Chief among names on the winners' list was Mark Cottrell who took the awards for 'Most Beautiful or Most Original or Most Ridiculous' and also for 'Most Maneuverable.' Two outstanding events were the 12-in-line Flexifoil train flown by the inventors, Andrew ('Wilf') Jones and Ray Merry, and Dave Turner's man-lift using Cody kites."

The next major event was the Truro Kite Festival on Royal Farm, Kenwyn, Cornwall. It was ambitiously organized by John Sweetman and David Lean into six categories of competition. Ron Moulton wrote later that the organizers were "becalmed but by no means deflated when the wind absolutely gave out. In consequence, very few kites actually flew." A great success,



AMPHIKITING AT OLD WARDEN AIRFIELD: FEET STEER NOSE BALL, HANDS CONTROL KITES - IT REALLY MOVES ON SMOOTH GROUND!

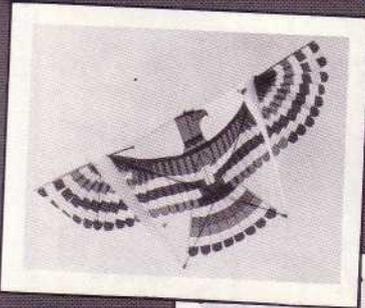


AN ELEGANT DIAGONAL BOX WITH CRUCIFORM TAIL SECTION GOES UP AT OLD WARDEN ON MAY 1ST. KITE BY DAVID PELHAM.



NINE-UP FLEXIFOILS → MOVE FAST FOR THE CROWD AT PARLIAMENT HILL FIELDS, LONDON, ON MAY 29.

JOHN FOWLER'S WELL-MADE 84-INCH EAGLE IN RED, WHITE AND BLUE PIECED RIP-STOP NYLON FLIES AT THE PARLIAMENT HILL FESTIVAL.

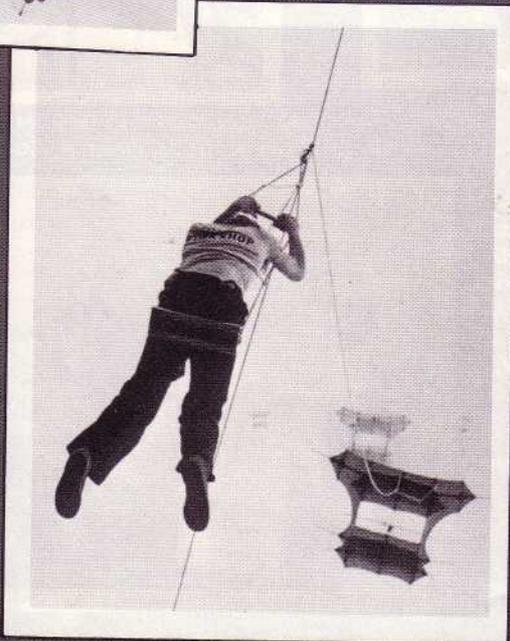


MARK COTTRELL IS THE KITE STUNTING CHAMP OF MAY 29 WITH HIS AERIAL SKYRIDER.

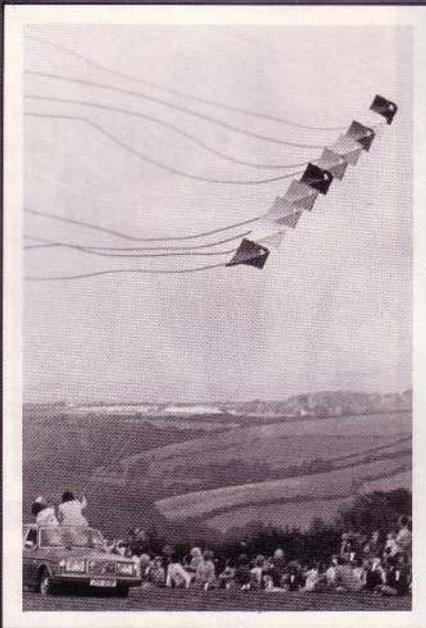


A BIG CODY IS A HANDFUL. HERE'S ONE OF DAVID TURNER'S MODELS WITH A CAMERA MOUNTED ON THE CROSS SPAR.

THREE CODYS BY THE KITE WORKSHOP LTD. ARE AIRBORNE OVER LONDON.

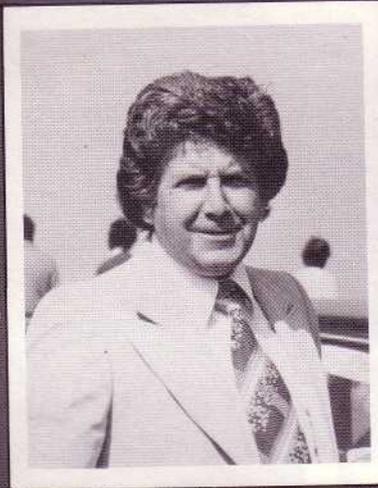
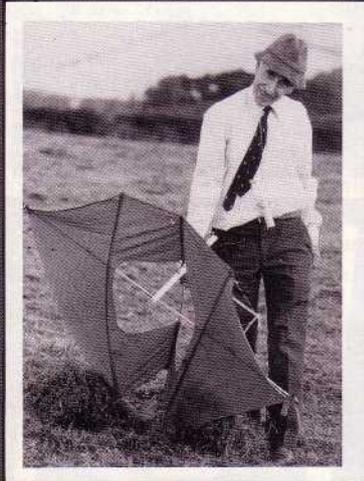


FACES AT TRURO IN SEPTEMBER



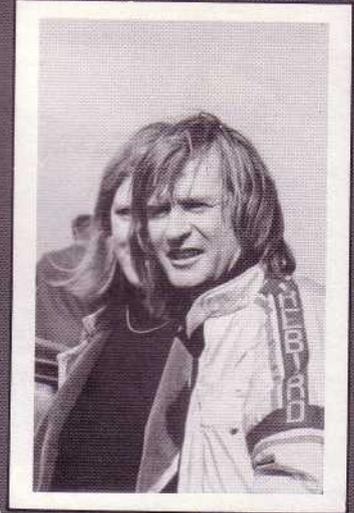
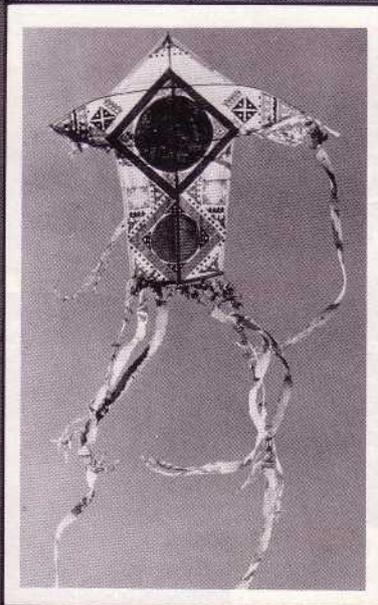
PETER POWELL PROVIDES HIS OWN BREEZE VIA VOLVO ON A CORNISH HILLSIDE.

SQUADRON LEADER DONALD DUNFORD WITH THE LATEST MODEL OF HIS DUNFORD FLYING MACHINE.



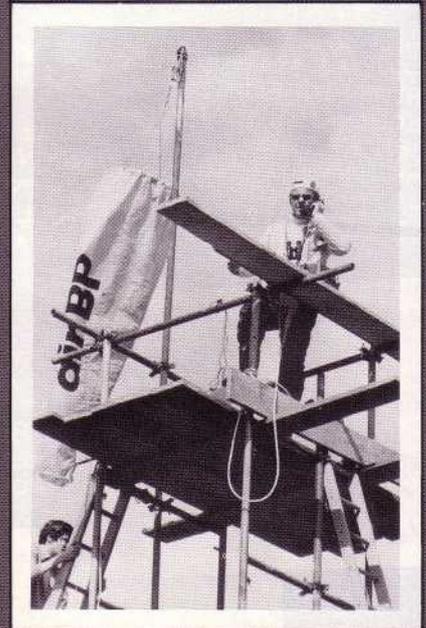
PETER POWELL - EVER BULLIENT.

JENNY CROXFORD'S DECORATIVE MALAY DESIGN, MADE OF MODEL AIRPLANE TISSUE AND BAMBOO, SUCCEEDS AT TRURO.

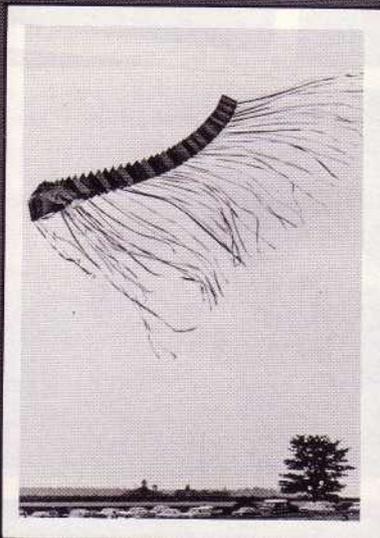


DAVID PELHAM - WISHING FOR WIND.

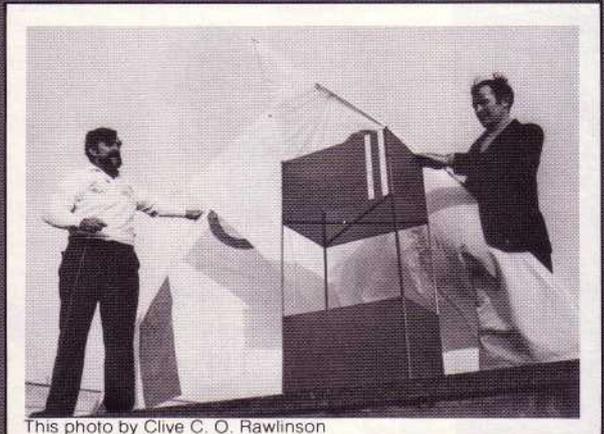
FESTIVAL ORGANIZER JOHN SWEETMAN - PHONING FOR MORE BREEZE.



BRIAN ECCLES FLIES 51 AEROBAT CONTROL KITES IN TRAIN AT THE OCTOBER 9 RALLY OF THE BRITISH KITE FLYING ASSOCIATION AT OLD WARDEN



THE EVE OF THE FIRST BRITISH KITE CHAMPIONSHIPS FINDS CLIVE RAWLINSON WITH HIS 15-FOOT DELTA, THE VIRGIN, AND BRUWER VAN GRAAN WITH HIS FINE BOX, TEST-FLYING FROM THE ROOF OF A LOCAL NEWSPAPER OFFICE.



This photo by Clive C. O. Rawlinson

a little puff about the American Kitefliers Association

The American Kitefliers Association is a worldwide organization devoted to the advancement of kiteflying.

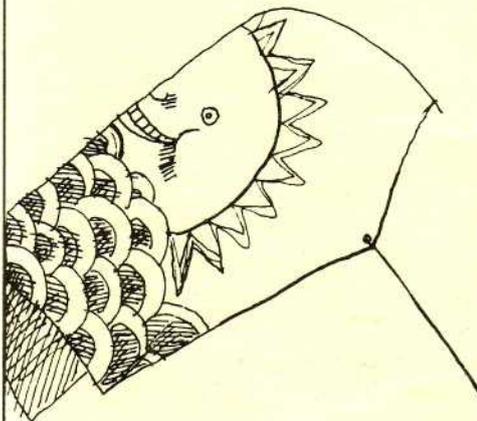
At the time of this printing, the Association enjoys approximately 2500 members, representing all 50 states and 27 foreign countries. The AKA was founded in October 1964 as the first organization of its kind in this country, and it maintains ties with several far-flung national and international chapters and clubs.

The Association's principal means of communication is its quarterly publication, *Kite Lines*™ (incorporating *Kite Tales*). Membership includes subscription to this magazine, which brings you such regular departments as:

- Design Workshop
- Kite Calendar
- What's New: Reviews of Kites, Books, Sundries
- Kid's Corner
- Ultimate Questions
- Profiles

... and more, as well as advertisements for interesting kites and in-depth feature articles. The contents of *Kite Lines* reflect and support the growing kite community, which you will soon come to know and enjoy as your friends.

The only requirement for membership is an interest in kites. If you believe yourself qualified to accept this lightest of all responsibilities, you are entreated to fill out the order form on the reverse and send it to us today.



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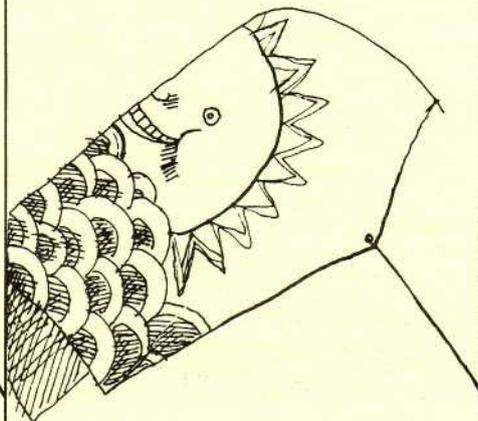
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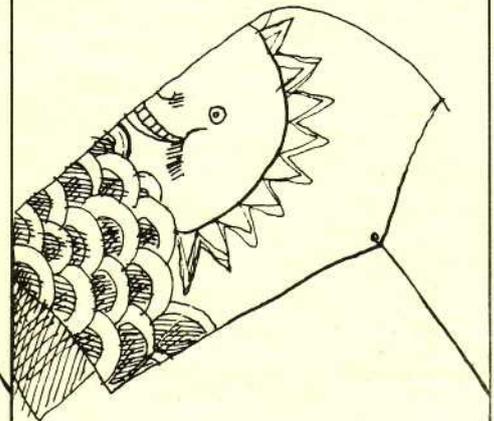
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however, was the astute Peter Powell and his team flying a train of his stunters from the open sun roof of a moving car. The windless event was still an opportunity for a reported 2000 kiteophiles to converge after traveling, in some cases, hundreds of miles.

Officially the festival ended at dusk. But in fact it went on until 2 a.m. in Mr. Sweetman's home where some tiny kites were being flown by Tom Chapman — with the aid of a hair drier.

The last major day of the year was October 9 at the Autumn meet of the British Kite Flying Association at Old Warden. Ron Moulton reported that more home-designed kites were brought out than before, often imaginatively built of rip-stop nylon and fiberglass rods, "more shapely and colorful than ever before." After a foggy morning, the sun shone and the wind freshened and from 9:30 to 5:30 there were kites aloft, as many as 300 at a time. Attendance was estimated at 2000 or more.

The Essex Kite Group was out in full force, celebrating the club's first birthday by flying all their favorite kites, as many as six per flier. Clive's old favorite, "The Virgin," a 15-foot delta, held steady in the sky. Originally all white, The Virgin is now decorated and patriotic in red, white and blue.

Ron Moulton recounted some of the arresting sights at the rally:

"Two multiple trains created new records, one with 44 Kiskeedees using a sled pilot kite on one line by Mark Cottrell, and the other no less than 51 Aerobats on two lines by Brian Eccles. Throughout the day there were numerous air-lifts, all conducted with due safety precautions. The Dutch boy-lifting Parafoil (25 meters square) was the largest yet seen and Chris Eden's man-lifting parachute made many ascents. B.K.F.A. members from Cornwall, Newcastle, Bournemouth, Liverpool, Bristol—in fact all parts of the country had a super day, terminated only by the rain which bypassed Old Warden until late afternoon. Among the other breathtakers were: Sid Mills with nine Flexifoils sewn in the national flags of the Common Market countries, flown in train and called 'Eurostack'; Phil Morley's agility with a four-line system that enables him to hold his kite in a set position pointing downwards; and Richard Hewitt's amazingly simple 12-foot 'fishtail' shape that promises a whole new look at self-adjusting

flexible kites. Altogether it was an inspiring experience to see so many new designs and to meet such nice people having a good time."

Mention of these larger events does little justice to the many "smaller" flies and meetings that occupied nearly every weekend through the year. One of these was staged by the Blackheath Kite Association at Greenwich on June 9 to mark the Queen's Jubilee trip down the River Thames. Another on June 12 at Blackheath brought out about 200 kites, including, according to Clive Rawlinson, "a beautiful hand-made and decorated antique Sanjo kite, bearing a portrait of the Samurai warrior Yoshitsune; John Clarke's perfect little miniature hexagonal; the fine Jubilee kite of Mr. and Mrs. A. G. Martin; Bruwer Van Graan's rotor; Duncan Rawlinson's Mustang, bearing AKA markings; an original Gibson Girl survival box kite from World War II; and David Beale's triangular-celled box kite made from polystyrene ceiling tiles."

One festival, the Great Waltham on June 27 in Essex, opened with a novel touch, the recorded voice of R. E. Ted Padman, who had mailed his greetings from South Australia via tape cassette.

Not every event was an outstanding success because weather cannot be guaranteed. On July 3 the Essex Kite Group held its Silver Jubilee Kite Festival at Hylands Park, Chelmsford, but as Clive Rawlinson reported, the fliers "waited patiently beneath the shade of the 200-year-old oak trees in a splendid rural English setting, on what was probably the hottest day of the English summer, for a wind that never materialized.

"The kites were there, the people were there, but the kiteflying conditions were not, although some kites did actually fly, and a demonstration of Indian fighter kites was given by members of Shama Traders of London."

Besides the festivals, a display of historical and artistic kites at Sanderson's in central London gave added promotion to the sport of kiting. Presented by The Kite Workshop Ltd., the exhibition was visited by thousands and ran from September 26 to October 23. Clive Rawlinson called the show "tastefully staged," and the list of kites from around the world was extensive. Many of the kites had been made by Britons, indicating that where antiques were unavailable replicas had been constructed by a few hard-working, talented kite makers.

All the growth of interest in kiting has inevitably built pressures toward organization. Britain seems still to be in a state of flux as *Kite Lines* goes to press. Local clubs are developing well but so far as we know the British Kite Flying Association, under Ron Moulton, has still not produced its promised tabloid publication, *Kites*. Chris Eden informed us that Albatross Kites was considering printing a kite magazine. At this writing, however, it appears that one Nick Laurie has finally put together the semblance of a functioning organization, the European Kitefliers Association, and a quarterly magazine, *The European Kiteflier*.

The first issue is to be 44 pages, containing a "mixed bunch" of articles. AKA has sent greetings and congratulations to the organizers. We hope the enterprise will stabilize and consolidate the kiting community in Europe and add to the vitality of our favorite pursuit. Membership in E.K.A. and subscription to the publication costs \$16 U.S. per year and includes air mail. Inquiries may be addressed to the Secretary, European Kitefliers Association, Longstone Lodge, Aller, Langport, Somerset, England. Membership in the British Kite Flying Association, to include subscription to its tabloid, costs three pounds (about \$5.62 U.S.). Inquiries may be addressed to Ron Moulton, P.O. Box 35 Bridge Street, Hemel, Hempstead, Herts HP1 1EE, England.

Clearly the Jubilee Year has been only the start of the groundswell for kiting in England. Clive Rawlinson is already looking forward to several kite dates for 1978 in his latest issue of the Essex Kite Group's newsletter, "Kite Wings." (Inquiries about E.K.G. may be addressed to Clive at The Croft, Howe Street, Gt. Waltham, Chelmsford, Essex, England). Clive was savoring his radio interviews and an invitation to speak at one of the winter meetings of the Royal Aeronautical Society, Southern Branch. In a recent letter, Clive mused:

"I shall long remember and treasure that moment at Norwich, towards the end of the year, sitting beneath a shrub drinking Guinness and absorbing that rare sound of those huge Codys, when suddenly my companion, Bruwer Van Graan, said, 'That's unique, you know; nowhere else in the world will you experience that sight and sound.' I do believe he was right." V.G.



AUSTRALIA

John A. Porter corresponds from Melbourne:

This year in Melbourne kiteflying has increased considerably, and whereas previously there were only about two organized kite flies a year, this year there have been about two each month and competitions at each one.

Last March I completed a 10-foot Conyne, my largest so far, and was fortunate enough to be awarded prizes for Largest Kite at two recent flies. At present I'm making a Hargrave-type box - 10x11x3 feet. The struts will be removable, allowing the kite to be rolled up. I hope to have it airborne soon. Early in 1978 I hope to become elevated by a train of kites. I have heard of two other fellows in Melbourne who also intend to lift off shortly.

The newsletter of the Kite Fliers Association of South Australia is full of news from this group—their school demonstrations, kite flies, a four-part kite series on television and invitations to participate in sports and arts events. We excerpt one report:

The second Public Kite Day of our group was held at the Parklands in Adelaide on Sunday, 11th September. Television Channel 7, the association's sponsor, distributed a number of their sleds. These kites, as well as those of members and friends, were flying well in the light wind. Bob Hains, our President, and Wayne Hosking created a lot of interest by producing Bob's parachute which was bridled to be flown as a kite.

After trial and error it flew successfully—if one can consider lifting Bob off the ground at one point as being successful. The parachute full of wind looked very spectacular although the ground crew needs a little more experi-

ence. Gloves are definitely needed to control the ropes.

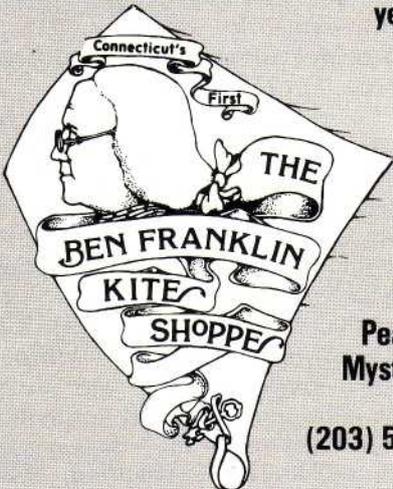
At about 3 p.m., it was decided to hold the children's contest but the kites had only just climbed into the sky when the rain started. To avoid damage to the kites it was eventually decided to abandon the competition.

CANADA

Wood Ellis reports from Toronto:

Thirty-six beautiful metal trophies, the best-flying array of ultra-small kites I have ever seen and about 150 entrants, all dominated by a huge flag pole with a 25 x 50 foot Canadian flag, were some of the highlights of the Canadian National Exhibition Kite Festival of 1977. "Mr. Kite of Canada," Ken Lewis himself presided, as he has in previous years, near the bandshell of Exhibition Place, Toronto, on Sunday

Continued on page 57...



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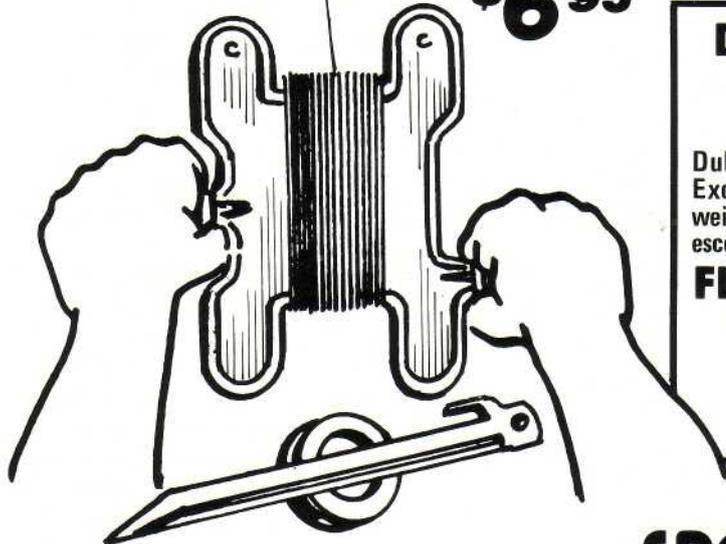


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Flying with The Old Pro

By Bob Ingraham
Founder, American Kitefliers Association

Mention shipping a kite and anyone within hearing who has ever shipped one will wince. The shipping of kites by any means is a pain in the neck and likely to cause fractured spars and badly scuffed and torn fabrics.

Kite shipping problems are not peculiar to the commercial kite industry alone. Most kites at one time or another send a kite or receive one from a friend, and the experience has a 50/50 chance of being a disaster. When you pull such a kite from the package, providing there's any package left to pull it from, the parts that spill out are probably not those to be assembled. Rather they are pieces of parts that were once assembled.

Kites are particularly hard to ship safely because of their sizes, shapes, weights, and the scarcity of appropriate break-resistant containers.

Wholesalers who ship kites in quantities are privileged to ship more per postal dollar and can pack them more securely. The packed aggregate bundle builds more resistance to the strange pressures applied in transit by means known only to the post office or other parcel shipping services. But even the bulk shippers have their problems.

What happens to kite packages in shipping? One thing is that they become part of a tremendous volume of mail. It just isn't possible for postal or other parcel services to give the proper attention to packages carrying the notation of Fragile, Handle with Care or Please Do Not Crush or Bend. If the handlers did, only a few packages would be shipped each day, and everyone wants his package to go post haste.

For added cost, you can buy special handling privileges for your package. The plan insures that your shipment will get more than ordinary care and not be jammed in with tons of others to be crushed, smashed, mutilated or soiled. But it's that added cost that hurts if you ship many kites.

Insuring a package may protect you from loss but the procedures involved with claims and the eventual reimbursement are complicated and lengthy. Insurance is, however, the

only way to prevent large losses and disappointed customers or friends. There is a factor worth considering with insurance. All insured packages sent by the U.S. Postal Service are clearly marked and there is a possibility that a conscientious employee here or there might give it a little more care for that reason. But don't count on it.

All this is pretty dismal and all I can say is that in order to protect yourself you'll have to pack your kite in a manner that lowers the odds a little. That is to say you must exceed even the requirements of the handler. Post offices and parcel services demand packages securely packed as a matter of self-protection. But what the post office calls a safe package and what is a safe one are two different things.

Don't be "penny wise and pound foolish" when it comes to packing a kite. Don't be so weight-conscious that you skimp on protection to spars, fabric, etc. This means reinforcing a package well even though it costs more to pack it and mail it. Using a heavy wood strip with spars taped to it firmly is one way to gain some advantage. Don't use flimsy cardboard or spare the tape. And don't use masking tape. Use filament strapping tape liberally even though it is high-priced. Completely encircle the package with it at several points. Ends of packages are particularly vulnerable to bursting. If possible, glue the flaps; then if tapes come loose you have protection left. Don't mail in so-called mailing tubes, particularly if your kite has wooden spars. If possible, use a triangular

cardboard carton, well taped. A triangular shape is by far the strongest structurally.

Damage to shipments can occur in ways other than breakage. Moisture can ruin some materials. Some liquid shipments spill in the mail and can ruin your kite. Moisture can also erase your shipping label, making the delivery impossible. Cover the basic address with a strip of transparent tape to avoid this. Cover the entire shipping label if there's any possibility it may become loosened. Self-adhesive labels stick better than the type you have to moisten as they are of heavier paper and less likely to dry out and loosen or get torn off. Wrap all fabrics in light plastic to avoid possible scuffing should the package break open. This will also prevent damage to the fabric from moisture or possible chemical leakage.

Here's a good suggestion: If your package is light, a pound or less, and you don't care to pay insurance fees, try first class mailing. The rate is only a little more than the combined costs of parcel post and insurance. Shipping is also faster and there is more attention paid to first class mail.

I have shipped over 600 kites in the past three years, most of them packed singly. Of that number, I've had only one case of broken spars. I've had some other frustrating experiences, however. Foreign mailings are particularly vexing. There are no major countries which permit packages of more than 3½ feet in length to be received and handled by their postal system. Most kites have at least 36-inch spars.

One three-kite shipment of mine to Canada was rejected because it was 48 inches and exceeded the maximum 42 inches required by that country. In studying other ways to ship, I found there was only the now-defunct Air Express. I sent it that way and got stunned by a bill of (believe it or not) \$30.

A shipment of two kites in one package sent to Spain and measuring an exact 48 inches as required by that country came back in two months because it had become flattened at the ends and was 49 inches in length when it got there. That was a \$6 loss of postage.

There isn't much chance this situation is going to improve materially. About all you can do is pack carefully and remember that there is one more adversity concerning kites in transit than "snow, rain, heat and gloom of night." It's rough handling. ◇



Drawing by Weston Phipps

News From Here & There

... Continued from page 54

afternoon, August 28.

The site of the kite fly is right in the middle of the western part of the exhibition grounds, so that throngs of pedestrians, going between various buildings and other events, were constantly swarming on all sides of the flight area, and sometimes in it. Naturally, many of them were captivated, and remained to watch and admire. The flight area was small and contained a number of trees about 20 feet tall, so the flying events were occasionally otherwise. Dozens of people met for the first time at nose-touching distance while disentangling lines.

The air was absolutely calm at ground level part of the time, even though the big flag was popping noisily in a strong and steady breeze, estimated at 25 knots by those who were lucky enough to get their kites up into it. Such a pronounced ground effect, within 150 yards of the waters of Lake Ontario, surprised me.

Ken Lewis manufactured a winged triangular box kite, nine feet long and seven feet wide, in full view of the



Ken Lewis and Miss C.N.E. of the Seven Nations Reserve, Brantford, Ontario.

public, at the kite booth in the Arts and Crafts building, during the days preceding the Kite Festival. What a bold proof of craftsmanship! It is a very rugged kite, of the type he has provided the Canadian government for scientific work. It was to be exhibited at several events near Washington, DC,

during 1977 and 1978.

The judges originally intended to judge the numerous ultra-small flyable kites without requiring actual flight. The entries were so numerous and so good that the judges were unable to agree, so they required actual flight, to simplify judging. Fifteen or more of them flew steadily, well above the fliers' heads in true sustained flight. The winning entry was a box kite about 3/4 -inch long, which reminded me of a June-bug on a string, trying to lift its captor.

Several participants came from the USA and other foreign nations, and won a few trophies. Ken welcomes participants from all countries.

The C.N.E. Kite Festival allows each registered contestant to enter any number of kites in the 12 classes, one kite per class. Consequently, the variety and quantity of kites lying about, or occasionally in flight, was even greater than the number of contestants. There was very little waiting time for any contestant who entered several events, and this constant scurrying about, readying kites, added a great deal to the holiday atmosphere.

News from Here & There continues ...

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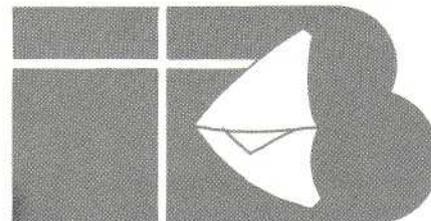
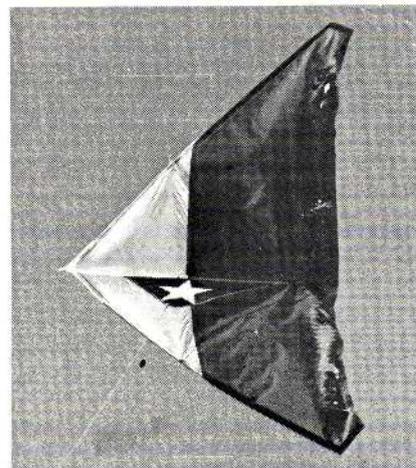


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Scenes at Hamamatsu, the indescribable.

News From Here & There

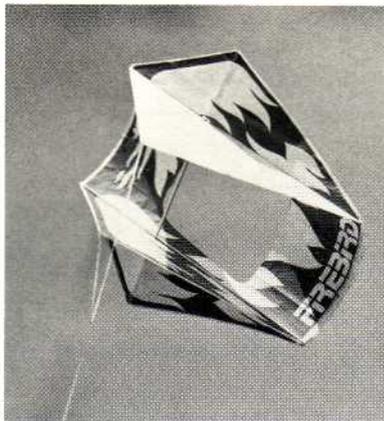
... Continued

JAPAN

Dave Checkley sends news of his annual kite tour of Japan:

The 1978 Kite Festival Tour of Japan will depart from the West Coast Friday, April 28, and return from Tokyo Saturday, May 13—two action-packed weeks of kite festivals, kite flies with Japanese kite groups and visits to traditional kite makers. The two main features are a special kite fly with the Japan Kite Association at Tamagawa on April 30, and the Hamamatsu Kite Festival on May 3, 4 and 5, which is probably the oldest and largest kite event in the world. The tour group will also meet with Takeshi Nishibayashi's Create-a-Kite Club in Toyko.

The tour will be limited to 10 persons on a first-come-first-served basis. This informal, people-to-people trip employs trains and taxis rather than a tour bus, and allows plenty of free time for individual exploring and shopping. The cost for the two-week trip, including air fare from the West Coast and all land arrangements except meals, will probably be about \$1400 double occupancy. For more information and brochure, write Dave Checkley, The Kite Factory, Box 9081, Seattle, WA 98109, or call (206) 285-6262. ◇



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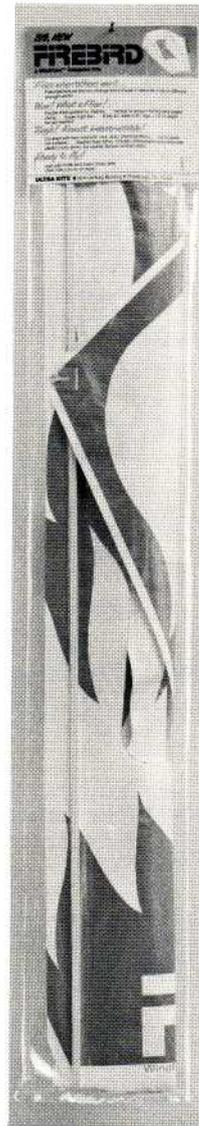
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January

8

William A. Eddy born, 1850.
George Pocock's "Charvolant," a horseless carriage drawn by kites, is given its first run, 1822.

12

Naval barrage kites, designed by Harry Sauls, successfully tested in the Chesapeake Bay, 1943.

14

Utran, or kite-fighting day, in Rampur, Bombay, Ahmedabad and other cities in India.

15

Midnight (Hour of the Ox) Festival of the Lantern Kites, traditional Chinese holiday.

17

Benjamin Franklin born, 1706.

21

10th Annual International Kite Flying Contest, with Will Yolen, Director, at Sheraton Sandcastle Resort, Lido Beach, Sarasota, FL. Contact: V. Ward Bennett, 1540 Benjamin Franklin Dr., Sarasota, FL 33577, tel: (813) 388-2181.

28

1st Annual Kite Flying Contest, Coral Way at 112th Ave., Miami, FL. Sponsor and contact: Dade County Park and Recreation Dept. (c/o Carol Denton), 50 S.W. 32nd Rd., Miami, FL 33129, tel: (305) 579-5262.

February

6

Kite-making Workshops, Feb. 6-10 and 13-17, Sunshine Kite Co., 233-B Fisherman's Wharf, Redondo Beach, CA 90277. Phone in advance for appointment: (213) 372-0308.

March

1

Domina C. Jalbert files first Parafoil kite patent, 1967.

3

Alexander Graham Bell born, 1847.

4

Plaza Camino Real Kite Day, Plaza Camino Real shopping mall, Carlsbad, CA. Kite demonstrations. Sponsor and contact: Plaza Camino Real, (714) 729-7927.

11

30th Annual Ocean Beach Kite Festival and Parade, Ocean Beach Recreation Center and parade to beach, San Diego, CA. Sponsors: San Diego Park and Recreation Dept., Ocean Beach Recreation Council and Kiwanis Club. Contact: Don Hodo, 4726 Santa Monica Ave., San Diego, CA 92107, tel: (714) 223-1175.

13

Clean Monday, traditional kiteflying day at beginning of Lent in Greece.

18

18th Annual San Antonio Kite Fair, Brackenridge Park polo field, San Antonio, TX. Sponsors: KITE Radio and San Antonio Dept. of Parks and Recreation. Contact: Phyllis Alvarez, Dept. of Parks and Recreation, 950 E. Hildebrand, San Antonio, TX 78212, tel: (512) 828-8111, ext. 32.

12th Annual Smithsonian Kite Carnival, Washington Monument grounds, Washington, DC. Sponsors: Smithsonian Resident Associates, National Capital Parks Commission and DC Recreation Dept. Contact: Tina Parker, Smithsonian Resident Associates, Smithsonian Institution, Washington, DC 20560, tel: (202) 381-5157.

11th Annual Oahu Kite Flying Contest, Kapiolani Park, adjacent to Waikiki, Oahu, HI. Sponsor and contact: Honolulu Dept. of Parks and Recreation (c/o Don Fujii, Sport Section), 650 S. King St., Honolulu, HI 96813, tel: (808) 524-1257.

2nd Annual Kite Festival and Workshop, non-competitive, for children and novices, Chinquapin Recreation Center and Park, Alex-

andria, VA. Sponsor and contact: Alexandria Recreation Dept., (c/o Betsy Hepfinger), 1605 Cameron St., Alexandria, VA 22314, tel: (703) 750-6328.

Dual Control Stunt Kite Contest, south of Redondo Pier, Redondo Beach, CA. Sponsor and contact: Sunshine Kite Co. (c/o Randy Joe), 233-B Fisherman's Wharf, Redondo Beach, CA 90277, tel: (213) 372-0308.

19

50th Annual Zilker Park Kite Tournament, Zilker Park Kiteflying Field, Austin, TX. Sponsors: Austin Downtown Exchange Club, Austin Parks and Recreation Dept. and Radio KOKE. Contact: Richard S. Robertson, 5401 Shoalwood Ave., Austin, TX 78756, tel: (512) 453-7174.

7th Annual Gunston Hall Kite Festival, non-competitive, Gunston Hall Plantation, Lorton, VA. \$2 adult admission fee, children through 16 free with adult and kite. Contact: Louise Stockdale, Gunston Hall Plantation, Lorton, VA 22079, tel: (703) 550-9220.

(Tentative date), **6th Annual New Orleans Kite Festival**, New Orleans, LA. Sponsors: The Kite Shop—Jackson Square and WRNO Radio. Contact: Sally Fontana, The Kite Shop—Jackson Square, 542 St. Peter St., New Orleans, LA 70116, tel: (504) 524-0028.

3rd Annual Kite Flite, Johnson Park, Tulsa, OK. Sponsors: River Parks Authority, Tulsa Park and Recreation Dept. and KMOD/KXXO Radio. Contact: Vivian Steele, River Parks Authority, 411 S. Denver, Tulsa, OK 74103, tel: (918) 582-0051.

2nd Annual Come Soar With Us Kite Festival, Bull Run Park, VA. Sponsor and contact: Northern Virginia Regional Park Authority, 11001 Pope's Head Road, Fairfax, VA 22030, tel: (703) 278-8880.

24

Good Friday, traditional kiteflying day in Bermuda.

7th Annual Great Delaware Kite Festival, Cape Henlopen State Park, Lewes, DE. Sponsor and contact: Lewes Chamber of Commerce, P. O. Box 1, Lewes, DE 19958, tel: (c/o Charles Ailes), (302) 856-3531.

25

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

To send us your date, request our Calendar Information Form. Events listed must be open to adults. Listing does not constitute endorsement by AKA, but is done as a service. Events are free and competitive unless otherwise specified. Schedule is subject to change; visitors should verify dates beforehand.

Classifieds

Services and products are listed as a service and listing does not imply endorsement by the American Kitefliers Association. Publisher reserves the right to reject any ad not in keeping with publication's standards, and to abbreviate to save space. *Rates:* 20¢ per word, \$2 minimum. Post office box numbers and telephone numbers count as two words, abbreviations and zip codes as one word. Check or money order, made payable to American Kitefliers Association, must accompany copy and be received prior to closing date (as given on masthead, page 5). Send to *Kite Lines Classifieds*, 7106 Campfield Road, Baltimore, MD 21207.

WANTED

CLIPPINGS: News and articles of kite interest are actively solicited by AKA. First person to send an original with name and date of source will receive a small reward. Later duplicates received will be returned if sender supplies stamped, self-addressed envelope. Send clippings to American Kitefliers Association, 7106 Campfield Road, Baltimore, MD 21207.

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FOR SALE — MISCELLANEOUS

BLOWN SKY-HIGH, the easy kite book of proven fliers. (See review, *Kite Lines*, Spring 1977.) \$4.50 by mail. Margaret Greger, 1425 Marshall, Richland, WA 99352.

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

AKA EMBLEM PATCHES now available direct from AKA. Washable, red-white-and-blue, 2½x2½", \$1.75 ea. (2 for \$3.25, 3 or more \$1.25 ea, all postpaid. (Foreign orders add estimated postage.) Send check or money order to American Kitefliers Association, 7106 Campfield Road, Baltimore, MD 21207.

CLOSE OUT on *Kite Craft* books. Only \$4.30 each while they last. Send check or m.o. to Bob Ingraham, 315 N. Bayard St., Silver City, NM 88061.

KITE TALES BACK ISSUES: Last left are Vol. 8 No. 4; Vol. 9 Nos. 1, 2 and 4; Vol. 10 Nos. 2 and 3. Only 3 copies left of Vol. 9 No. 4. Send \$2 each to Bob Ingraham, 315 N. Bayard St., Silver City, NM 88061.

SLIDE SHOWS: Two educational 80-slide shows, "All Manner of Kites" (about 14 min. on history and varieties) and "How to Go Fly a Kite" (about 9 min. on flying techniques, contests), with synchronized tape cassettes. Write for order form to Maryland Kite Society, P.O. Box 10467, Baltimore, MD 21209, or call (301) 332-1619.

RETAILERS LISTING

Ben Franklin Kite Shoppe, One-Half Pearl St., Mystic, CT 06355, (203) 536-0220.

High as a Kite, 691 Bridgeway, Sausalito, CA 94965, (415) 332-6355.

High as a Kite, 131 Water St., Vancouver, B.C., Canada V6B 4M3. Mail order catalog available.

Higher & Higher Kites, Faneuil Hall Marketplace, Boston, Mass. Mail address: P.O. Box 558, Brookline, MA 02147.

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

The Magic Dragon, 1160 W. Broad St., Stratford, CT 06497, (203) 375-7638. Retail, mail order.

Marblehead Kite Co., 1 Water St., Marblehead, MA 01945.

WestSport & Game—over 40 styles of kites—Westport, MA, (617) 636-8755.

Wind Play, 212 N.W. Couch, Portland, OR 97209.

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

Kite & Gift, Inc., 333 Jefferson #7, Fisherman's Wharf, San Francisco, CA 94133, (415) 885-5785.

Marblehead Kite Co., P.O. Box 961 A, Marblehead, MA 01945, dealer inquiries as well as individual mail order.

Shanti Kite Spools, 210 Chattanooga St., San Francisco, CA 94114, (415) 648-2621.

New for '78 Squadron Kites, quality kits. Write or call Stratton Air Engineering, 10859 Portal Drive, Los Alamitos, CA 90720, (714) 761-1911.

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Hundreds of Sleds Hundreds of Smiles

The Smiles-Part I

By Shirley B. Osborne

The Providence Elementary School's annual Kite Day was started last year when our principal, David Penman, said he would like each teacher to come up with a bicentennial project that could be shared with the whole school. I went into instant shock with my mind as empty as a cloudless sky.

But my lucky star was shining. I had seen a notice in the Lancaster newspaper appealing for people to help with a kite festival planned as part of the Greater Lancaster celebration. I'd called and told them I was interested. The first meeting I attended, at which an expert was to speak, was a big surprise to me. It turned out I was the "expert." I placed a panic call to the Maryland Kite Society, and Mel Govig came to my rescue. Mel conducted a workshop for over 200 children from all over the county, and by watching him I had my bicentennial project. It was perfect!

Our school is located in rural southern Lancaster County with a three-acre grass playground on the northwest that has no trees or wires. Mr. Penman approved it, our P.T.A. donated the money for materials, and our art teacher, Ken Hoak, who is a kite enthusiast, said he would help.

Mel had explained how to cut a pattern of the sled kite from heavy cardboard, smooth out a box of white plastic bags, tape down the top one so they don't slip, cut around the pattern with a razor blade and lo, you have 30 kites ready for felt-tip marker designs. It didn't take long to cut out 350 kites. Dowels from the lumber yard were taped in a bundle together and cut into 16-inch pieces.

Up until now my third graders had not been involved, but that soon changed. Multiplication was used as they calculated how many sticks it would take per room at two sticks a child. There were 350 pieces of 72 inch string to be measured, cut, separated, rolled carefully around small hands, counted, and then delivered to each room. We put two chairs the right distance apart, had the kids sit on them to keep them from

sliding, and the string went round and round.

Since we are in a rural area many parents could not supply string readily so I went to a supplier for a large quantity and my kids set up a store selling kite string at cost. This meant handling money and making change.

Ken Hoak used his scheduled art periods in every classroom for the children to crayon their designs on 12x18-inch manila paper. When they were finished, the kites were placed on top of the manilas and the pupils traced and colored their designs with felt-tip markers. When the kites were collected, a sheet of manila was between each kite. We had found that the marker from one kite would bleed onto the back of another.

The kites from the first and second grades were brought to my classroom for assembling. I started by having my pupils put their own kites together. The children had read about assembly lines in Social Studies, so we divided into teams and set up an assembly line for the 120 kites coming from first and second grades. The class was impressed that we could do so many in about the same amount of time as it took to do an individual kite. Since the loop in the bridle must be tied exactly in the center, this job was mine.

My students also went into the fourth and fifth grade classrooms to demonstrate how the kite is assembled. The fifth graders then worked with the kindergarten youngsters on a one-to-one basis in the design and assembly of their kites. This included a "flying lesson" when they were finished.

The project kept expanding as the children started composing kite songs and writing poems and stories. They came to me with pages turned to the kite cartoons they found in Charles Schulz's Peanuts books. They auditioned and voted on who would say the lines as they planned the program which was to be given for the entire school using these cartoons as skits. It was a high interest-level project, the whole school was involved, the kids loved it, and we hadn't yet flown the kites!

The schedule was posted in the faculty room so each teacher knew which class was assigned to the morning or afternoon fly. We watched the weather reports and when our beautiful day in May arrived, the announcement, "Boys and girls, this is Kite Day", came over the intercom. A cheer went up that could be heard all over the building.

By 9:15 the youngsters were out and seated on the grass next to the building. Fifth graders flew first and we kept the rules simple. Children could use any kite they chose to fly. They were to keep their kites in hand until a whistle was blown and we allowed two minutes by stop-watch to get their kites in the air. When the whistle blew again they started to bring their kites down. All teachers acted as judges and we "eyeballed" the highest and second highest kite. The room teacher had the job of tracking down those two kids. This wasn't as hard as it sounds because the designs were fairly distinctive. After each class had flown there was a fly-off between

Below, wide open spaces at Lancaster, PA, give kids room for tangle-free flying. Bottom, Comparing their sleds, kids find many are pretty, all are original.



the first place winners for the grand prize of a special kite. Every grade had three winners. I made big rosette ribbons with blue for first place, red for second and green for best-decorated. Then the teachers took a turn flying against each other, and a lot of partisan cheering was heard. Ribbons were awarded, and my third graders gave a demonstration flying my Tetra, dragon and other different kites. After lunch we did it all again with the second group of kids.

Surprisingly, we had few tangles. Two or three kites did sail away because the children had neglected to tie the string to their spools, but that was minor. The second year was much easier. We knew what to expect, and again it was a super day. This year we also took a picture of each room's winners, had prints made and gave a snap-shot as part of each winner's award.

The very best part for me is the happiness I see in the faces of the children, the letters and poems I get in the following days, the enthusiasm of the other teachers, and probably most important, having a principal who recognizes a terrific learning experience. I know the first day of school in September I'll be stopped by groups of children asking, "Mrs. Osborne, are we having Kite Day this year?"

Drawing by Linda Kobitz



How the Big Dipper Came to Be

One day a little old man liked to fly kites. So he made a kite with lights. Seven stars he made. He could only fly this kite at night. One night his string broke. And his kite flew with the other stars. And that is how the Big Dipper came to be.

By Kim Wert, 8
New Providence Elementary School
Lancaster, PA

The Sleds-Part II

By Mel Govig

My first two or three years of teaching kitemaking to children, I tried all the usual materials and designs in the old books. These work if you have only a few children who have plenty of time and talent.

Then one day Walter Pasciak of Big Brothers in Baltimore showed me how he had made a sled using the dimensions of the Wind Wizard manufactured by the Airplane Kite Company. He saw that it was simple and sure, a real ticket to the "success syndrome" that kids so often need.

He picked up a big roll of plastic from a bakery and a ball of string from a stationer and went out to make 200 kites with some boys and their Big Brothers. I'm thankful that he invited me to help. We made *and flew* about 200 kites in two hours. Since then I have not attempted to make any other kite when more than a handful of kids were involved.

What I do now is just a refinement of what we did that day. I discovered the use of felt-tip markers for decoration when reading an article in *Family Circle* magazine describing their use on plastic bags. The original way of bridling by tying through holes punched in the cover was switched when I saw Bill Bigge's sled with its bridle simply taped on—surprisingly the toughest, surest way. The overall dimensions of the kite were scaled down slightly to the most economical use of 1/8-inch dia. dowels without sacrificing kite flyability.

The present setup allows me to carry to a school, church or anyplace else enough materials for making and decorating up to 500 or more complete kites and enough line to fly all of them—all packed in a soft-sided suitcase only 18x24x4 inches. And all the kites fly!

I've used this forgiving design with hyperactive children, senior citizens, groups of all ages, with gratifying results—no failures! I've heard praise for it everywhere though once someone objected that the children were not given an opportunity for creativity or struggle. My answer is that the decorations are all different, so an element of individuality is there (indeed each and every kite stands out). And I guess I just don't believe that learning from failure is the best way.

Preparation of materials for any kitemaking session is the same. Procedure

may vary depending on the size of the group and whether it's an organized or more casual occasion. A class of children or a pack of Scouts is different from an open-ended public day, usually outdoors, where people crowd around in unscheduled fashion.

MATERIALS FOR 60 KITES

- A box of 30 white plastic "tall kitchen" trash bags, 2'x2'6" size. (Beige colored plastic is also available, but looks dingy to me.)
- 120 dowel rods, 1/8"-dia. x 16" final size. (I usually cut 48-inch lengths in thirds to arrive at this, but other lengths can be used, as well as matchstick bamboo from sun screen.)
- 30 yards of 3/4"-wide masking tape or freezer tape (almost any kind of tape will work in a pinch).
- As many permanent felt-tip markers as you can get or buy, in assorted colors (fewer of yellow; they get "dirty" faster). Ideally, you'll want at least one marker per child; encourage sharing to provide additional colors. Markers are your biggest expense, so shop for quantity buys. They will last through at least 10 good workouts.
- 120 yards of 8-lb. cotton line or a similar lightweight inexpensive line, for bridles.
- Enough line to fly 60 kites (about 3000 ft.). The line for bridles and for flying can be the same or different qualities and weights. Monofilament for this kind of kitemaking can give you nightmarish tangles, but almost any other line will do, and cost may determine your choice. I use cones of string bought at a restaurant supply house, the kind still used in small bakeries. Crochet thread is also good. Place the ball in a box with a small hole in top, or rig up the cone with a coat hanger eyelet atop so the line spins off readily.

TOOLS AND EQUIPMENT

- Box knife or razor blade for cutting plastic.
- Scissors for cutting tape and string if necessary.
- Tape dispenser suited to tape used—either a heavy holder or a small hand-held clipper that attaches to the roll itself.
- Masonite, mat board, heavy cardboard or sheet metal for pattern or template (mine is 28-gauge steel).
- Cutting surface for cutting the plastic (at least 24 x 40").



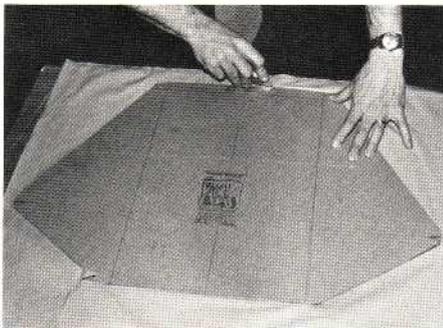
Bill Koehler

ADVANCE PREPARATIONS

- Precut the sticks to 16-inch lengths. Bundle about 20 of your 48-inch sticks together with strong rubber bands or tape, mark in thirds and cut the whole bundle with a hack saw, coping saw or band saw. You can cut or break the sticks one at a time, but it's slower. Rebundle the precut sticks in 50's or 100's or whatever is convenient to keep count of them.

- Precut the plastic bags before you start. Exceptions to this are when the group is small or when interested teachers or group leaders would appreciate a demonstration of your system for their own later use. Assuming you have made your pattern or template first, the steps in cutting the plastic are:

1. Lay out flat the plastic bags to a depth of 5 or 10 bags (with practice you can cut 30 bags, 60 kites at once).
2. To keep the pile from sliding while you cut, either tape down the corners of the top bag or put thumb tacks through the corners, outside the template area.
3. Place the template on the pile of bags and cut through the stack, all the way around the template. (Discard the excess plastic, unless you want it for other kites. These sleds do not need a tail except in very strong winds, above 15 miles per hour.)



Anneke Davis

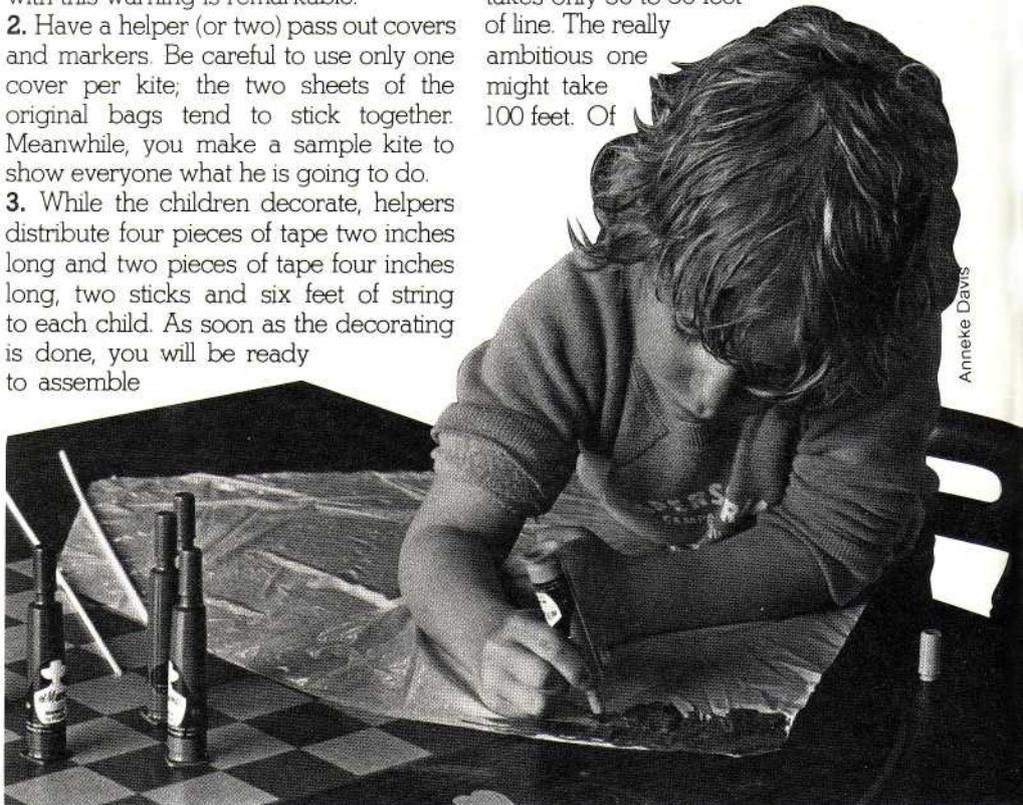
- Check out conditions to be expected at your forthcoming workshop. If possible, have one adult for every 10 children. Warn your hosts that you have to use permanent ink markers with the plastic, so they can protect tables or floors with newspaper if they wish. Encourage each member of the group to bring a tin can as a reel; each can should have both ends open and no sharp edges inside. Also prepare your hosts to expect a minimum time investment of 45 minutes to an hour for kitemaking (some artists will want to do a careful job). An additional half hour should be allowed for flying, if weather and scheduling permit. If not, the flying can be done another day. But the spirit is keenest at the moment of completion, and in the best situation the children will at least be allowed to run around the room with their kites flying from their fingers in the towing loops—a sight that always does my heart good.

FOR ORGANIZED INDOOR SESSIONS

1. Start by warning everyone about the permanent ink markers. Here is my spiel: "Everyone push up your sleeves—up, past the elbows. These colors will come off your skin, if you wash regular, in two or three weeks, but they will never come off your clothes. So let's put the color on the kite, not on you, not on the table. We don't want your mothers or the custodian mad at us, do we?" My success with this warning is remarkable.
2. Have a helper (or two) pass out covers and markers. Be careful to use only one cover per kite; the two sheets of the original bags tend to stick together. Meanwhile, you make a sample kite to show everyone what he is going to do.
3. While the children decorate, helpers distribute four pieces of tape two inches long and two pieces of tape four inches long, two sticks and six feet of string to each child. As soon as the decorating is done, you will be ready to assemble

the kites, either with adult assistance on a one-to-one basis or by leading the group along step-by-step. Here are the steps:

4. Turn cover face down.
5. Put the 2-inch tapes about ½ inch under the cover at each of the four stick-end corners.
6. Put the sticks in place and fold over the tape. Be sure that each tape folds over the end of the stick. Secure it to the front cover surface. If you don't, the sticks will slip down (or up) when the kite flies.
7. Attach one end of the bridle to one 4-inch tape, and place it on the side at the bridle point. Repeat for the other side. It is easier to put the string on the tape and then on the kite than to try to tape the string in place. The most common error for young hands is to have the string coming toward the center of the kite instead of off the ends at each side.
8. Locate the center of the bridle by holding the bridle corners together, in alignment, and pulling the two lines out full length. Within the last two inches or so, tie an ordinary overhand loop in the exact center of the bridle, the towing point.
9. For flying, I generally tie each kite by its towing loop to my big cone of wrapping string. Then I tell the child to run out as much string as he wants for flying his kite. When he stops, I break off the string and tie on the next child's kite. In my experience the average child takes only 30 to 50 feet of line. The really ambitious one might take 100 feet. Of



Anneke Davis



Bill Kuchner

course, on a good day some will want more, but it's easy to ask them to wait until everyone is flying.

10. The last detail is to try to protect the children from losing their kites by having them tie the ends of their strings to anything handy. If they have tin cans this is easy. They can also use rolled-up newspaper or other litter. The salvage operation compensates for the bits of plastic that inevitably are left to decorate the trees.

FOR CASUAL OUTDOOR SESSIONS

1. Bring along adequate decorating surfaces and assembly tables. Anything fairly smooth will do for a coloring surface. Cardboard on a tailgate, scattered boards on the ground or folding tables work well. One table should be set up for the stick-taping step.
2. Set up stations alongside the field (try to be upwind of the flying). On a small occasion, such as a neighborhood picnic, one large folding table does the whole job, but for a mob, break down the steps to four separate stations: decorating, stick-taping, bridling and flying. Queues will form at each.
3. All of the same steps as for indoor sessions apply, except that each person at each station will be continually at work helping a series of people on one

operation. Older persons can usually make their kites just by watching you work with younger ones. Sometimes they will volunteer to help, too. Yes, the fun is for all ages, though some adults will claim they are interested only for their children. Encourage this; mention that their kite can be a pattern for many more.

BITS OF WISDOM

Some kitemakers agonize over how to decorate their kites. Soothe them with the thought that fine detail is lost in the sky anyway. Or suggest they send their craft up with just their names or with nothing on them.

In less-than-perfect conditions (that is, frequently), a few kites will be either decorated upside-down or made inside-out. This doesn't really matter, of course; make light of it. "What have you been drinking today?" "Here's a kite that's facing God!"

What do these kites cost? They average 11-14¢ each, depending on how much wear and tear the markers get. That leaves a small "profit" on our charge of 25¢ per kite. The profit covers gasoline to get there and the rest goes to our kite club kitty. It isn't much, but when you do between 20 and 30 workshops every spring, some of them quite large, it adds up and helps run our kite festival every year. The largest number of kites I have ever made in one day was last spring at an elementary school. The whole school—526 children—made kites. I went from room to room dispensing materials and quick training as I went.

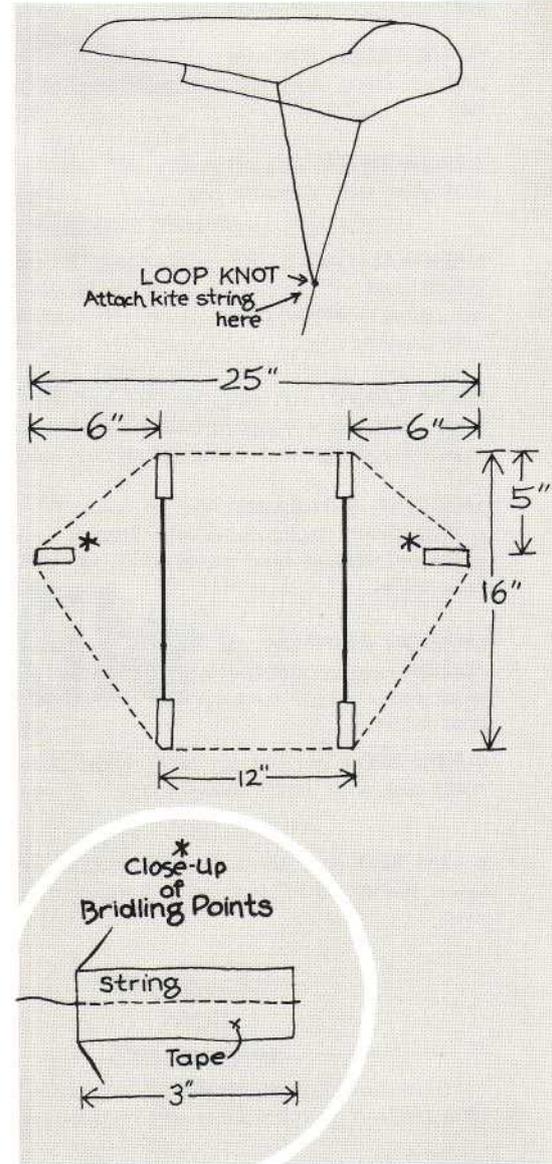
We never count our time spent on these activities, which might be considered further proof of our lunacy. But we believe we are paid in a lot of other ways. ♦



Anneke Davis



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MORNING SUN-RAINBOW: 32' long. White ripstop nylon background with 2-color sewn applique, red sun, blue waves; body in 7 rainbow colors. **\$26**

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4-ARM REEL: With about 800' nylon twine, 40-lb. test, with handy swivel snap **\$30**

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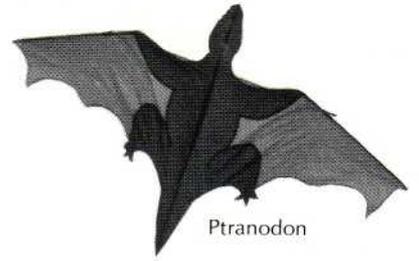
Canada Goose



Super Bat



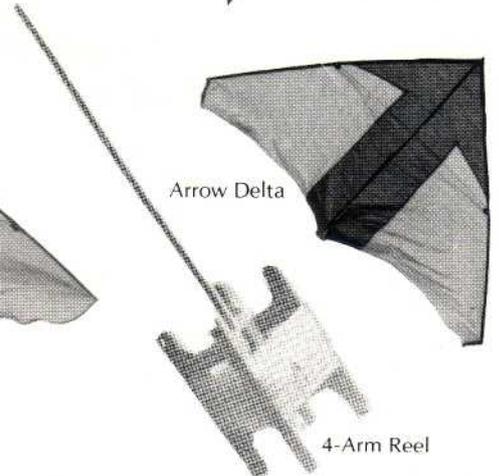
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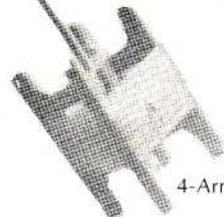
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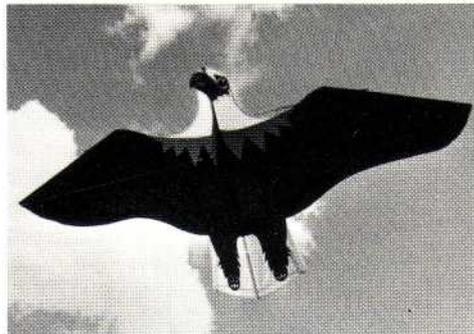
Super Eagle



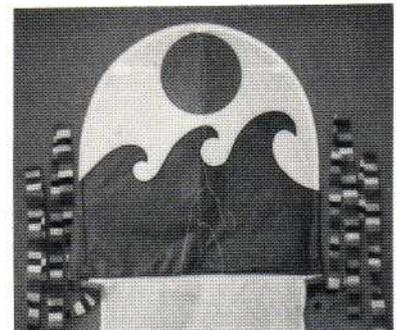
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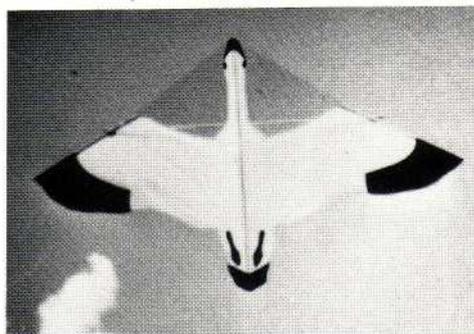
4-Arm Reel



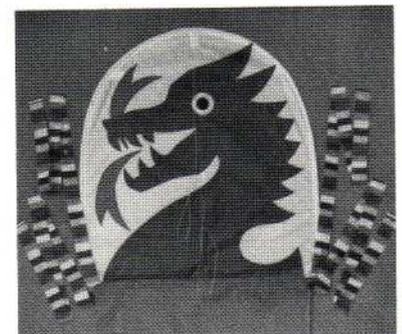
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