



*Town Square, Villanova di Bagnacavallo, by Andrea Casalboni*

## sources

If you can't find what you're looking for locally, try these:

**Kite Lines Bookstore**  
Post Office Box 466  
Randallstown, MD 21133-0466  
Phone (410) 922-1212  
Fax (410) 922-4262

*The world's largest selection of kite-related books. Catalog.*

**Kite Studio**  
5555 Hamilton Boulevard  
Wescosville, PA 18106  
Phone (610) 395-3560  
Fax same

*Extensive selection of kitemaking materials. AKA publications and logo merchandise. Catalog.*

**Into the Wind**  
1408 Pearl Street  
Boulder, CO 80302  
Phone (800) 541-0314  
(303) 449-5356  
Fax (303) 449-7315

*The granddaddy of kite mail order houses. Wide range of kites, kitemaking materials, and accessories. Catalog.*

**Air Affairs**  
107 Chelsea Road  
Hatboro, PA 19040  
Phone (215) 672-1470  
Fax (215) 674-2826

*Manufacturer of Sutton Flow Form Kites, from 4 sq ft to 450 sq ft. Custom orders too.*



# the aerial eye

a quarterly publication of the aerial photography committee  
of the American Kitefliers Association  
volume 2 / number 4 / fall 1996

US\$4.00  
USA & CANADA

US\$5.50  
overseas



*Playground,  
Golden Gate  
Park  
by  
Cris Benton*

## KITES & KITEFLYING

## the aerial eye

This newsletter is produced by the Aerial Photography Committee of the American Kitefliers Association. It is our goal to publish quarterly, in August, November, February, and May.

Single copies and subscriptions are available to AKA members and non-members alike, under the following fee schedule:

|          | single | 4 issues |
|----------|--------|----------|
| AKA      | \$3.00 | \$10.00  |
| overseas | \$4.50 | \$16.00  |
| Non-AKA  | \$4.00 | \$15.00  |
| overseas | \$5.50 | \$21.00  |

Domestic subscriptions will be mailed by first class mail; overseas subscriptions (i.e., outside North America) will be mailed by air.

Advertising is available in modules of 2.25 inches wide by 1.25 inches high, at \$20.00 per module, payable in advance. Advertising in which aggressively competitive pricing is featured will not be accepted; call if you have questions or need more info. Camera-ready copy is not necessary, but is acceptable if it meets the above criteria. Copy deadline is the first of the month of publication. Contact Brooks Leffler.

## 2 years = 8 issues

This issue completes our second year of publication. It's late due to conflicting personal priorities—sorry about that. Our subscriber list now stands at about 200. We'll lose some of those in the big year-end renewal frenzy, but our dropout rate has been very low, which is most gratifying. Makes the volunteer effort worthwhile and rewarding. Thanks.

Each issue brings a new contributor or two, but we can use more. Deadline is first of month of publication (see left).

Text via Email or on 3.5" (9cm) high-density disk (Mac or IBM in ASCII text format) is preferred, but typed text or handwritten letters are welcome too. Likewise, diagrams in PICT, TIFF, or EPS formats are best, but pen drawings, preferably on white paper, will work as well.

Photos may be sent as negatives, prints or slides, or by electronic transfer only if you're on AOL. We can also read Kodak PhotoCD, or 3.5" high-density disks in the formats listed above. We'll keep the prints unless you direct otherwise, but return all negatives, disks, CDs, and slides—eventually.

Send everything to Brooks Leffler at the address below.

### american kitefliers association aerial photography committee

#### Steve Eisenhauer, Chair

229 Lake Ave, Pitman, NJ 08071  
(609) 589-2049 Fax (609) 785-1766  
seisenhauer@tnc.org

#### Wolfgang Bieck

Am Britzenberg 23  
29549 Bad Bevensen, Germany  
(+49) 5821 24 43  
WBieck@t-online.de

#### Brooks Leffler, Editor

PO Box 34, Pacific Grove, CA 93950  
(408) 647-8363 Fax (408) 647-8483  
kyteman@aol.com

#### Craig Wilson

7210 Harvest Hill Road  
Madison, WI 53717  
(608) 831-6770  
kitecam@juno.com

## our feature this issue: kites & flight

by STEVE EISENHAUER



A year ago, kites were the focus of the summer issue of the aerial eye.

Since then, I've made changes in the kites I fly and how I fly them. Other KAPers have likewise made changes and improvements in their kites and flight methods. So revisiting and updating these topics seems like a good idea. There's truth in the adage "Only a fool learns from experience: a smart man watches and learns from the fool." In kite selection and flight method we've all made some foolish mistakes, but let's learn from mistakes collectively, not individually.

For me, delta-Conyne kites are still the ideal load lifters. Six DCs are in my bag: a 13' Sun Oak, a 10' Marshall and four 8' Ultralights. Some experienced KAPers use rokkakus, parafoils, deltas, and other designs. Each design has inherent advantages and disadvantages; flying skill can overcome disadvantages and accentuate advantages.

I'll describe my own technique for flying DCs, and leave the detailed discussion of other designs for KAPers with more non-DC experience. Last year I used one non-DC kite—an Italian-made facet box kite for high wind conditions—but it crumbled in a gale one day and is no longer in my kite-bag. So my experience is now exclusively with DCs.

Like most kitefliers, I watch tree limbs, leaves, and flags to estimate wind speed. In a strong wind, the 10' DC goes up alone; in weak winds, the four 8' DCs go up in train. For moderate winds, the 13' DC provides the lift or, if needed, one or two 8' DCs are added in train below it. The 10'

and 13' DCs have center openings too small for use as a lower kite in a train; the 8' DCs have large openings designed for flying in a train.

The hardest-pulling kite should always be at the top of a train; during early ascent at lower elevations the lower kites tend to flop around (and even occasionally circle). Like a train locomotive, the top train kite must be big enough to pull the lower kites into flying position and to prevent derailment (a plunge from the sky).

DCs have a tendency to overfly [i.e., glide over your head with slack line] in light winds or whenever the wind dies down. If your camera is attached, this tendency can be problematic: your camera loses altitude quickly, and crashes if you can't reel it in quickly enough. One solution is a substantial tail or drogue. I use both on my 13' DC: a drogue (29" circumference inlet, 4" circum. outlet, 16" length) that trails 15' behind, and two 6' long 5-strand streamer tails. On my 10' DC, two 6' long 5-strand streamer tails alone are sufficient since this kite isn't used in light winds; the tails are more for stabilizing kite movement than to control overflight.

On the 4 DC train system, the top kite has similar 6' long' 5-strand streamer tails. Never put a tail or drogue on kites below the top kite: entanglement can occur as the kites often wander during ascent.

• continued on page 24

## measuring kite characteristics

by ROBERT S. PRICE, Burtonsville, Maryland

Looking up at kites flying overhead one sometimes wonders "Which is the better flying kite?"

One can make a pretty good judgment if one kite is outstanding or the others won't fly. What if they are fairly evenly matched? How well is a chosen kite actually performing? If you make a subtle change, did it improve or injure the kite performance?

Some measurements can be made fairly easily, such as the line pull, line angle, and kite weight. Others are more difficult, such as sail area and wind speed.

Everyone knows that the pull on a kite string increases as the wind strength increases, within limits of either not flying or crashing. Even that is not strictly true; at launch the kite may pull very hard and then pull less strongly as it assumes its normal flying attitude.

Every kite is affected by three forces (Fig. 1). One is gravity, one is the line pull, and the third is the force caused by air flowing over the kite surfaces. The latter force is composed of two major compo-

nents: lift and drag. Lift is presumably useful since it lifts the kite and any payload. Drag is generally considered undesirable but is very important in that it provides much of the stabilizing force the kite needs to fly steadily.

One of the important quantities measured on aircraft wings is the lift to drag ratio, L/D. Ratios for different wings (or kites) can be compared as a measure of efficiency. The lift to kite weight ratio (L/W) can also be used in comparison. But the wind speed must be considered too since the lift is directly affected by the wind speed. Since the drag also varies with wind speed, L/D may also be affected. Can of worms, isn't it?

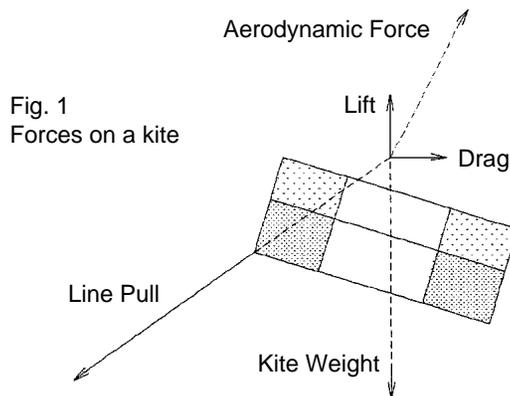
I prefer to compare real kites on the basis of lift per unit weight. This basis includes all the faults of the builder and awkwardness of the design.

How can one measure simultaneously enough of the factors involved to make a meaningful comparison? The procedure described below may be one way.

If, in a photograph, the horizon, the kite, and the kite line are visible, the line angle and the angle of attack of the kite may be recorded simultaneously. If the line tension and wind speed could be measured and recorded in the same photograph all the variable data could be preserved in one picture!

Wind speed should be measured at the kite since the wind on the ground may

• continued on page 20



## the eagle of sitka

by CRAIG WILSON



The trip to Berck-sur-Mer, France, in April was quite an experience for me. The aspect of the experience that had the greatest impact on me was meeting other KAPers. With the exception of very brief encounters with Brooks, Anne, and Steve, I had never been in the presence of another aerial photographer.

Berck was for me a pilgrimage to the Mecca of KAP, and I was completely floored by the creativity and beauty of the rigs that I saw there. From the creative rig of 16-year-old Julien Guilbert of France to the highly technical video-assisted rig of Andrea Casalboni of Italy I was amazed at the different approaches to solving the same problems. My conclusion is that they all work quite well and that any system in the hands of a skillful and knowledgeable operator will make terrific photographs.

### HARANGUING & THREATS

After much ridicule, haranguing, persuasion, and threats from some at Berck, I have conceded to go on-line, pay more attention to the needs of my family, and construct a Picavet suspension system.

I am on-line at work and at home now. I am still negotiating the family thing. And I want to make it clear that I am not replacing the pendulum with the Picavet, only adding the option of this beautiful suspension system.

On the plane home from Berck I began to consider how I would make the Picavet

Sure, I could make it just like someone else's but that isn't my style. Mine would need to come from my heart, my soul, my garage. So on Saturday I started.

The first thing I did was to go out into the garage and look for different things that I could use to build the Picavet out of. According to Wolfgang Bieck, before starting any project, you first need to build a garage. I already had a garage so I saved a great deal of time and could get straight on to the Picavet.

Sure, any two sticks forming a cross would work, but I was looking for something with a "spirit" to use. Much of my present and past systems are constructed out of pieces that have spirit. Part of my pendulum is a piece of broom handle. The broom was used for as long as I can remember in my family's garage where I grew up. It had spent its life sweeping up sawdust and dirt from many creative endeavors over a period of maybe a dozen years. When the bristles were worn down to mere nubs I cut the handle off and saved it knowing that some day it would have another use.

Some of the parts of my kites are from old parachutes that my family used to set up as sun shades when we went camping. A few nuts and bolts, some aluminum and aircraft-grade plywood components of my rig were once part of an airplane that my father built.

### A MATERIAL WITH SPIRIT

When I went into the garage to select a material for the Picavet I searched for a material that had spirit, a material that would contribute that spirit to my photog-

• continued on page 18

## training deltas

by **PETER BULTS**, *Holthees, The Netherlands*

When I started KAP the only serious single-line kite I owned was a 2.5m delta. Obviously this wasn't enough. I went through a lot of kitedesigns; deltas, rok-kakus, delta-conynes, foils etc. It was difficult to make a decision. The fact that my kite had to be a large one made me more uncomfortable because I had no experience in flying those kites.

Eventually I came to the conclusion to build a train of deltas. Trains of kites do have some advantages. You can control the amount of pull by the number of kites aloft. What's more trains are known to be less sensitive in "dirty" windconditions. There are always some kites in the train that do their work properly. And a delta is known for its high flight angle and good performance in the light wind conditions that often occur in the place where I live.

What size? Some literature suggested that the pilot-kite should be larger than the others to provide some pull on the whole system. Another argued that the pilot must be small to prevent overflying. Well, stay in the middle of the road and build them 2.5 m wide.

To overcome the traditional problem of training deltas I used Tom Pratt's design of a Twin Keel Delta as published in the book *Kites: A Practical Handbook* by Ron Moulton and Pat Lloyd [Argus House, 1992; ISBN 1 85486 050 X].

The last kite I had built was a indoor-stunt kite. In that sport, weight reduction is paramount. So why not use that experience now? For weight in the kite reduces the amount of "payload" in KAP. That's why I made the delta-sails in Icarex™ P31. That is a polyester ripstop weighing only



31 g/m<sup>2</sup> (1oz/sq yd). Other features are minimal stretch, high UV resistance and zero water absorption.

Of course the frame is made of graphite spars. I use a Exel RCF 7 spreader, a RCF 6 Ultra for the spine and the leading edges are kept in shape by RCF 5. This kite weights only 180g [6 oz], which is a reduction of 43% compared to my original delta made of nylon cloth and ramin dowels.

If you consider to use Icarex for any of your kites in the future the following tips may be useful:

Since Icarex doesn't absorb water you can use water to glue together temporarily larger pieces of fabric prior to the sewing. Just spray a little bit of water on one piece and put the other in the right position. Stuck like nailed!

If you care about the weight of your kite never use double-sided tape to keep smaller parts in position before sewing

### spar stiffness equivalents

SIZES (OD) IN MM

| DOWEL | GLASSFIBER | CARBON  |
|-------|------------|---------|
| 7     | .....4     | .....4  |
| 8     | .....4     | .....4  |
| 9     | .....6     | .....5  |
| 10    | .....6     | .....5  |
| 11    | .....8     | .....6  |
| 12    | .....8     | .....7  |
| 13    | .....9     | .....7  |
| 14    | .....10    | .....8  |
|       | 12         | .....9  |
|       | 14         | .....11 |
|       | 19         | .....15 |
|       | 22         | .....15 |

them. It's too heavy. Some ordinary paper glue will do the job just fine.

Never use heavy Dacron for reinforcements unless it is really necessary. Multiple layers of the sail fabric saves weight with same result. Five layers of Icarex P31 weigh as much as one layer of Dacron.

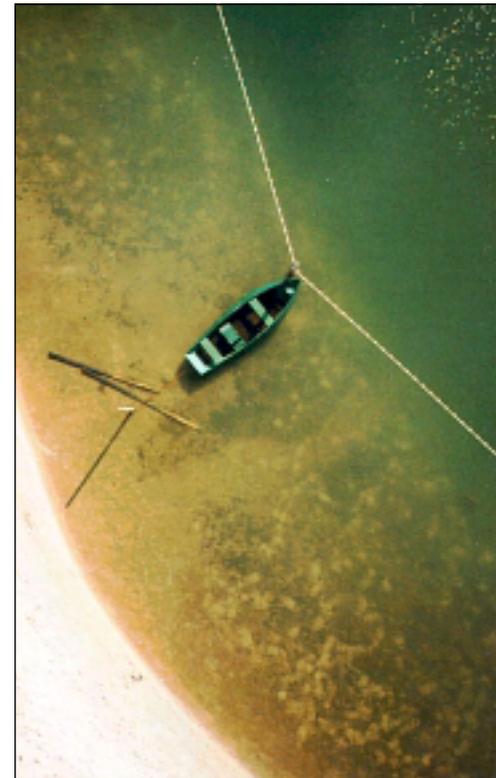
When you like to change the wooden frame of your kite to save some weight it is important to maintain its stiffness. From so-called spar comparison charts and my experience I created a simple chart [left].

To attach the lines to the kites I use lark's head knots to be fixed behind a figure eight knot. Undoing these knots is problematical unless you have a little loop at the end of the main loop. If this loop is about 20 mm long you even can leave your gloves on. [see below]

I launch the kites one by one. The first kite has 12m line and as soon as it flies stable the next kite is attached. This process is continued until I have the required lifting power.

• æ

[left] *Tethered Boat*, by Peter Bults



Lark's Head  
with loop

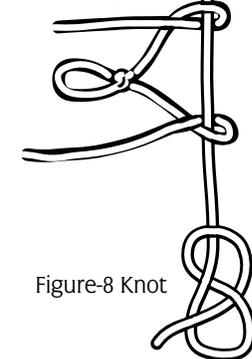


Figure-8 Knot

## nakajima-san's double-box delta

by MASAMI NAKAJIMA, Narashino-shi, Chiba, Japan

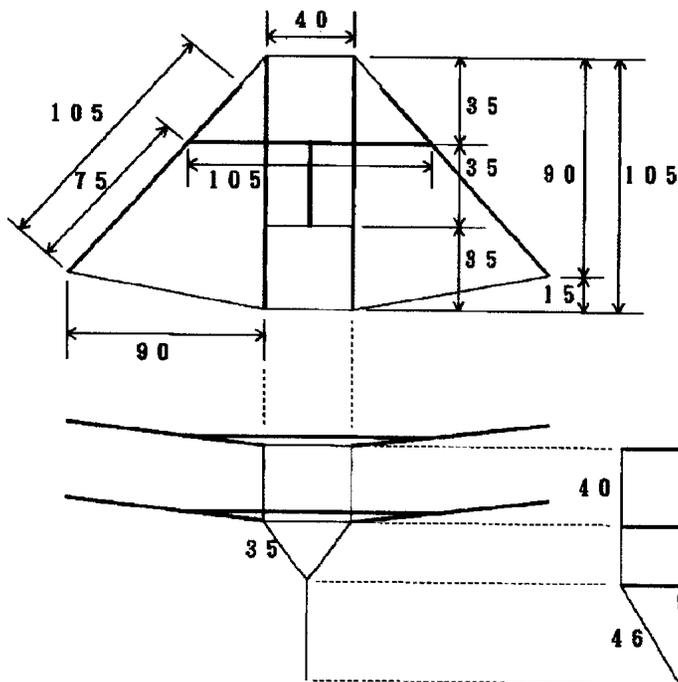


The Cape of Futtsu is a major headland running into Tokyo Bay. This headland serves as a park, and its tip has a public observatory, good spot with wide prospect.

I flew my 2.2m double-box delta from the top of the observatory and took the photo with the Nikon Mini compact camera.

This kite, especially in ultra-light materials, should be a great lifter in light air, due to the biplane "slot" effect. It's more compact and should be easier to fly than a train of delta-Conynes.

—bgl



• æ

## craig wilson's trusty 18-footer

Craig's delta is one of the hardest-working kites in KAP, having carried his camera for thousands of pictures. He adapted the plan from one published long ago in KAPWA News, and like all kite plans, it is scalable to larger and smaller sizes. He usually flies this kite with a 100-foot (30m) tube sock tail to keep it from overflying (i.e., flying at too high an angle).

We mailed this plan as a bonus insert to our third issue, before many of our current readers had joined us. But it's such a successful lifter that we thought it deserved an encore appearance.

—bgl

Lengths in cm.

Wingspan C-D = 472.4

Spars

A-B = 274.3

C-G & D-H = 233.7

E-F = 213.4

Wings

A-C or D = 304.8

B-C or D = 254.0

C-E & D-F = 162.6

Keel

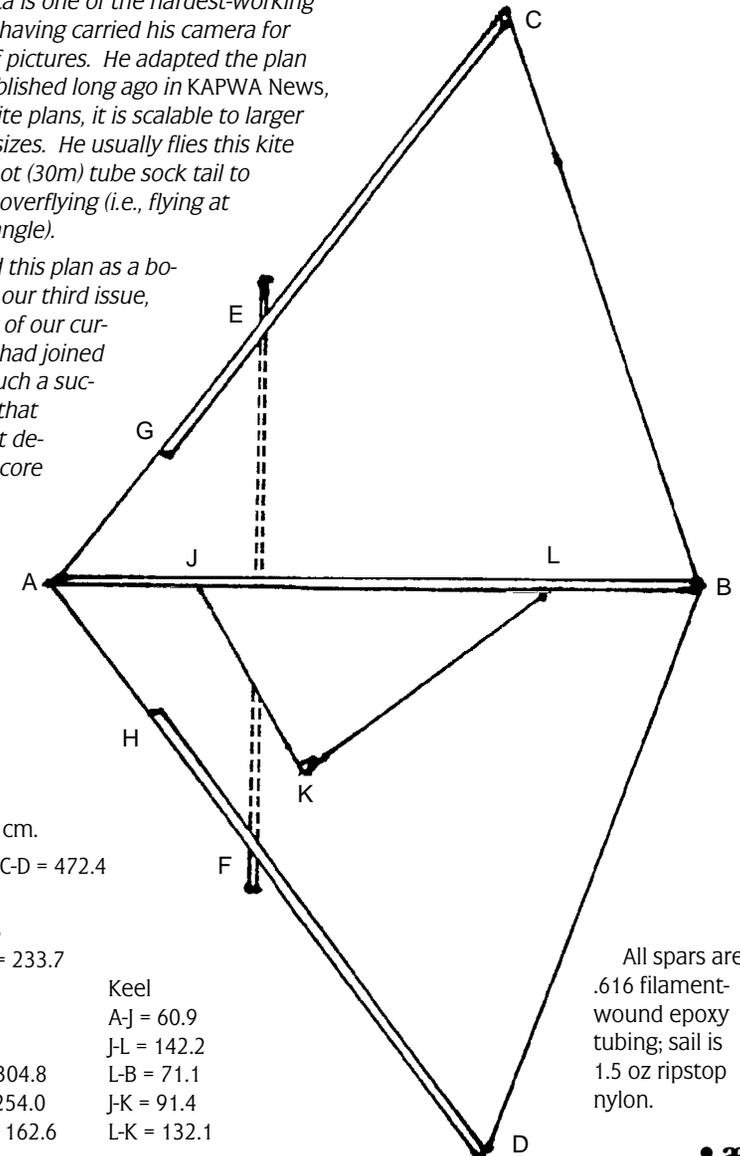
A-J = 60.9

J-L = 142.2

L-B = 71.1

J-K = 91.4

L-K = 132.1



All spars are .616 filament-wound epoxy tubing; sail is 1.5 oz ripstop nylon.

• æ

## kites in trees—an on-line serial

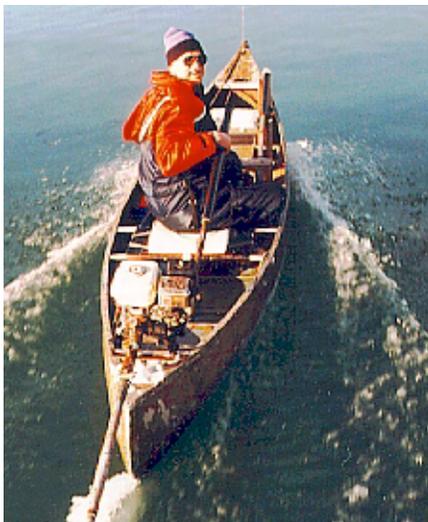
by HENRY JEBE, Douglas, Alaska

[Between trips for his job with the Alaska State Ferry system, Henry keeps me posted by email on his adventures KAPing in the Great North Woods. Here's a recent saga which fits our theme for this issue. — bgl]

Yesterday I was trying to shoot some better photos of the neighbor's house, while they were gardening in their yard. It seems almost every time I try, the wind is just not cooperative. This time was no different and I should have quit while I was ahead.

Another neighbor's Chesapeake Bay Retriever was being very playful and wanted to "fetch the stick" or anything else for that matter.

*Our intrepid correspondent,  
KAPing in a less-frenzied setting.*



The wind was going through lulls and gusts but I was trying anyway. I had two 8' Delta-Conynes [see æ, 1.3] in tandem to provide lift and had let out the line to the altitude I wanted, intending to walk the line down to attach the rig since I had an available beach.

After a couple of tries, with the rig not attaining enough altitude for good shots, I should have quit. One last try, with the camera in the air and the energetic dog clamoring for attention, I looked up in horror to see everything sort of tumbling out of the sky.

I grabbed the camera, covered the lens and dropped it on the ground. A gust of wind hit and the kites were upside down headed for earth, then sort of started their turn skyward. The line hooked a branch in a fir tree and the kites got into the turbulent air behind the trees. They fell into the downwind side of the tree-tops and are still there.

After too long a time puzzling my predicament, I decided to try to use my 14 ft D-C as a rescue kite. I didn't think of it before the wind became entirely too light (though I did try). I made one attempt this morning, but the wind was unreliable, changeable and from the wrong general direction. I became a bit afraid of losing another kite to the trees. What do I do when I run out of kites?

TWO DAYS LATER...

Yayyy! I got em back!

Just thought I would drop you a short line to let you know that I managed to fish my kites out of the tree. I used a bit of experience gleaned from KAP to help me.

On the rescue kite's line (with the kite about 100 ft above the ground), I used a long loop of line attached with a larks head knot and then added a couple of extra hitches to make sure the line wouldn't slip at all. Through this loop I attached a small carabiner, and snapped it around the line of the kites to be rescued from the trees.

I let out enough line to start lifting the rescuee's line from branches. Holding both rescuee and rescuer lines and controlling them both was difficult at best. Soon a couple of neighbors came out and helped, taking some line up on the spools while I controlled the lines with my handles [see Henry's Handles, æ 1.4].

First one kite let loose of the branches, and after about 15 minutes of walking around getting different angles of tension the other kite came free. Nearly the entire power of the 14-ft D-C was pulling on the two rescue kites in a near-20-knot wind before they came free.

Upon freeing, I was somewhat surprised that the kites pretty well flew independently. The tandem D-C's flew to one side a ways and the 14-ft D-C flew off to the other side.

I have a couple of small snatch blocks that I made, which were very useful for pulling the three kites down all together. They were essentially flying on the same line up to about 200 ft where the carabiner held them together.

The one neighbor is only about 140 lbs.

and was concerned about the possibility of being lifted off the ground if the other neighbor abandoned him. I sat on the ground with my feet braced among some rocks to anchor myself, while the two neighbors walked the line down.

I wish I had a video of the whole encounter as it was very interesting to see the power of the wind at work. I was impressed at how well this rescue worked, even though I wasn't able to make a good attempt until the second day after the treeing. This was primarily due to the very gusty and changeable wind directions of the day after. It was amazing that the kites didn't get any more tangled than they did after a couple of days of being tossed about by the wind.

I kept the line of the treed kites attached to the spool and clear of the ground away from animals until I was able to make each attempt, until success was achieved.

• æ

*A tree's eye view of  
Henry's backyard flying field.*



## rokkaku tips & techniques

by KEVIN SHANNON, 809 Factory Street, Carlisle, Pennsylvania 17013

*[The traditional Japanese design called Rokkaku—meaning six-sided—is widely used as a KAP lifter, in sizes of 4 to 8 feet high. It's very stable, powerful, and easy to build. Rokkakus are among the designs marketed by Kevin's Carlisle Kite Works. He originally wrote these notes for the 1991 AKA Convention and has graciously allowed us to reprint them here. —bgf]*

Rokkakus are built to proportions. The two most common are the ratios of 3-4-5 and 4-5-6. The first number is the distance between the two horizontal spreaders, the second is the span of the horizontals and the third is the overall height of the kite. See illustration.

For example, if your base unit is 10 in. and you use the first ratio above, your kite will be 30 in. between the horizontals, 40 in. wide, and 50 in. tall. By using these ratios, you can easily design your kite to any size.

Of the two ratios, the most popular is the 3-4-5 due to its more square shape. This is more pleasing to the eye when designing artwork for the kite materials. *[Theoretically, the taller variant should be a bit more stable for KAP but would generate slightly less lift due to its lower aspect ratio. —bgf]*

### MATERIALS

The preferred fabric is ripstop nylon in the 3/4 oz. to 1 oz. weight. Heavier weight ripstop is usually too stiff to billow correctly for stability. Amazingly, cotton fabric can make a very well-behaved Rokkaku due to its porosity, which induces stabilizing drag. Just be aware that the winds

necessary to fly the kite must be stronger than for ripstop versions. Also due to their softer coatings, parachute nylon or even general nylons will make excellent Rokkakus if you are willing to hot-cut everything and stabilize the finished kite by using non-stretch edge binding.

Pockets for the frame should be made of nylon webbing material or heavy cross-grain ribbon. Size the pockets so that their width is four times the stick diameter.

### FRAMING

Bamboo is the traditional framing material. If that is the direction you wish to go, you're on your own!

My preference is for hollow fiberglass (also known as epoxy tubing). My recommendations for sizes are as follows:

#### VERTICALS

|                    |              |
|--------------------|--------------|
| up to 45 in.       | .208 (E-40)  |
| 46 in. to 60 in.   | .370 (FL370) |
| 61 in. to 78 in.   | .414 (FL414) |
| 70 in. to 110 in.  | .505 (FL505) |
| 110 in. to 130 in. | .610 (FL610) |

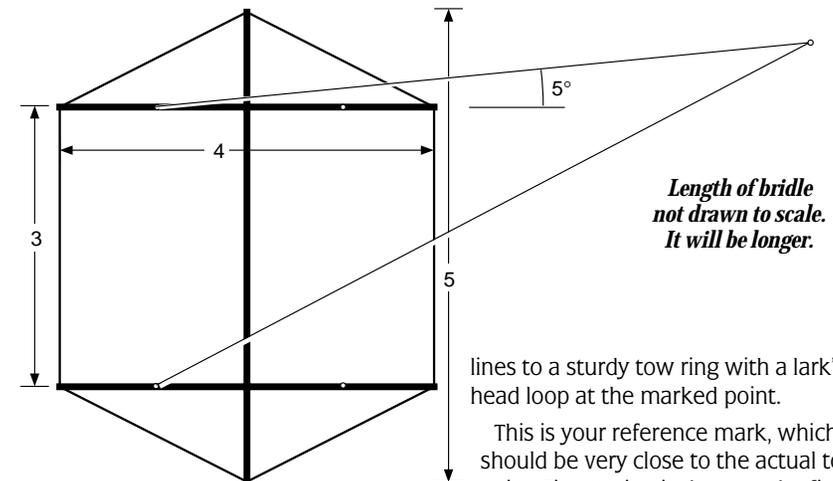
#### HORIZONTAL SPREADERS

|                   |                 |
|-------------------|-----------------|
| up to 40 in.      | 3/16 in. FG rod |
| 41 in. to 54 in.  | .248 (FL248)    |
| 55 in. to 70 in.  | .350 (K75)      |
| 71 in. to 85 in.  | .414 (FL414)    |
| 86 in. to 100 in. | .505 (FL505)    |

These are general recommendations based on a 4-point bridle. By using a six-point bridle, you can lighten up on the rods by one size.

### BRIDLING

Probably the least understood part of all kites is the bridle. Rokkakus are really



very easy to bridle using this simple method:

1) Bridle positions on the sail are usually one unit in from each end of the horizontal spreaders, or for a stronger support on big kites, 1/4 of the width of the horizontal in from each end.

2) Cut two lengths of line, each three times the height of the kite. Attach one end of one line to the top bridle point on one side and the other end to the lower bridle point on the same side. Attach the other length of line to the other side. Use whatever method you choose to attach the bridles to the kite so long as the two lines end up being of equal length. I prefer loops on the line ends that pass through a grommet on the sail. This allows the bridle to be affixed directly to the spar.

3) Pull the left bridle out taut to the right of the kite so that the upper leg of the line is aligned with the top spreader. Then slide your finger up so that it is about 5 degrees above the top spreader. Mark this point. See illustration.

4) Transfer this mark to the same spot on the other bridle line and attach both

lines to a sturdy tow ring with a lark's head loop at the marked point.

This is your reference mark, which should be very close to the actual tow point. Fine tuning is done on the field in preparation for flying.

### BOWING

The depth of the bowstrings on the spreaders should be 10% of the width of the kite on larger kites (6' tall or more) and up to 15% of the horizontals on smaller kites. The deeper bowing is needed on smaller kites because they react more quickly to gusts and eddies in the wind.

Be sure to use a bowing tie-off method that will not come loose if the kite is struck. I have seen many kites become unflyable after contact with another kite simply because the bowstring has loosened, making the kite uncontrollable due to loss of stability.

### FLIGHT ADJUSTMENTS

Kite won't rise: Move the tow point toward the top of the kite in small increments until the kite wants to fly.

Kite is unstable (fishtails): Move the tow point toward the bottom of the kite in small increments until the kite is stable. If necessary, increase the depth of the bow.



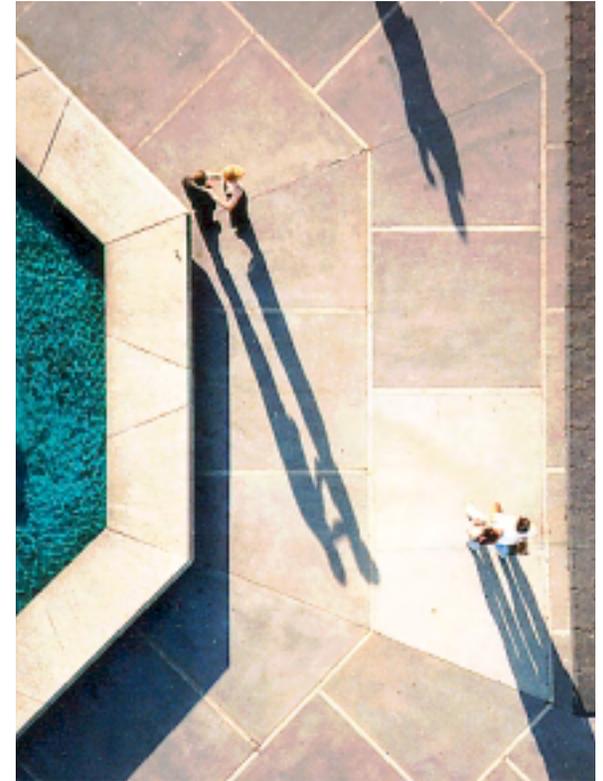
*Above: Capitol Hill, Washington DC, by Steve Eisenhauer*



*Above: Pavilion, Red Reef Park, Boca Raton, by Bob Pebly*

*R: Prom Night Bow-Tie Adjustment, by Cris Benton*

# aerial gallery



*R Center: Castle in Bodenteich, near Uelzen, Germany, by Michael Haugrund*

*Below : Croquet Tournament by Brooks Leffler LR: Old Chattanooga Bridge by Chuck Jones*



## watt happened!

by TOM BURGNER, Freeport, Illinois

It was a normal tension-filled day at work, so when I got home the prospect of some relaxation was a high priority. That's why kite-flying was invented, wasn't it? The fact that the wind was perfect, both in strength and direction, may have influenced the situation too. So after checking with my wife about supper plans and finding that it was "a bowl of soup anytime", at 6 PM out the door I went. I live in a rural area, so it was a short trip to the front yard with a 12-foot delta, line, and flight box.

In short order all was assembled, and the delta was up sporting tails from the center and both tips. This was the second flight for this kite, and I paused with about 50 feet of line paid out to gauge the strength of the wind. The pull, while strong, seemed manageable and considering the time of day one could expect the winds to diminish, so away we went.

As the kite rose I noticed it flew at an extreme angle, much higher than 45 degrees. I attributed this to not having much line exposed to the wind, and was curious how the line angle would change as more line went out. Every few hundred feet I paused and secured the line to a screw-in dog stake to rest, observe line angle, and to enjoy the view. Once again I congratulated my good luck on wind direction: No trees or power lines downwind. Nothing but unplanted cornfields.

Eventually, all 1000 feet of line was out. Hmmm.....decision time. In the flight box was another 1000 foot spool of line that had never been flown, and it was whispering "fly me." Well, why not. After some fiddling with swivels and knots, the new spool was attached and happily spinning

line into the sky.

Although the surface winds continued to die, the winds aloft seemed as strong as ever. Finally I started reeling in, but after only 50 yards or so I realized walking down was going to be a necessity. I began to make the necessary arrangements to anchor the line and reel, and that's when IT happened.

One second the reel was in my hands—and the next second it was gone!

The first lesson learned was immediate: next time I fly this kite the reel at minimum will be tied to me. The second lesson learned was that I couldn't climb a barbed wire fence and run through a cornfield nearly fast enough to catch the rapidly disappearing reel. The third lesson was, always put my name on the kite.

At this point, I slowed to a walk and hoped I'd be able to keep the kite in sight until hopefully it snagged on something. Then I heard a car engine racing and looked over to see my wife headed up the lane to the road, hoping to catch the reel as it crossed the road.

Unfortunately, the reel beat her to the crossing point and went over another barbed wire fence as it headed across the neighbor's field. The last I saw, it had been hitting ground about every 30 feet or so. As I stumbled up to the road, however, it seemed the kite wasn't drifting further away.

Hooray, it must be snagged! The question was, on what? As I looked towards the neighbor's house 1/4 mile away, the fourth lesson of the day was learned. Just when I figured I had a relatively harmless hobby, the realization hit me that the reel

could easily have gone through their front window.

Actually, it took awhile to determine where the kite was snagged. I could clearly see the kite, but with 2000 feet of line it was difficult to figure out where the end was. Although the reel was bright orange, the top of a 7200-volt power pole down a long country lane didn't seem a normal place to look.

It was very tempting. The reel was not quite 20 feet above the ground with the line going over the top wire and the reel fetched up solid against the lower wire. From ground level it was impossible to tell how it was snagged, but it gave the appearance that a slight movement of the reel could release it to fly again. It could be easily reached by ladder, but...there was that 7200 volt thing.

Now I've been known to attempt a few dangerous things, but I respect 7200 volts, and I've heard too many stories about plastics conducting high voltage electricity because of the moisture content of the material.

Swallowing what little pride I had left, I called the power company. The customer service operator wasn't exactly sympathetic, and explained to me that they "don't do kites." I explained the situation.

"So, this is an adult kite?" she asked. Not wanting to hesitate too long over an honest answer to that one, I said yes, it was an expensive kite. "And you're saying that it poses an electrocution hazard?" she queried. Well, no, I hadn't said that exactly, but I was beginning to get a feel for this game. "Well, the reel is right against the wire and it's easily reached from a ladder, so yes, I suppose it could be considered an electrocution haz-

ard." I didn't add that the most likely person to get electrocuted was me. Eventually she agreed to relay my call.

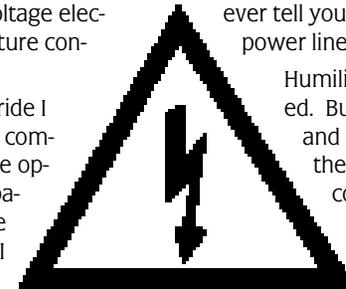
Over an hour passed with no word from the utility. I was getting desperate/frustrated and finally grabbed a rope and headed back to the power pole. As I drove down the road I saw a large dark silhouette ahead of me with a spotlight—the company truck, finally.

I led him down the farmer's lane to the pole and he shined his light up at the reel, looked back down at me and said "Where's the kite?" "Up there," says I. "Where?" says he. By now there was absolutely no surface wind, so I could understand his confusion. "Uh, about 2000 feet that way," I said pointing skyward.

He shined the light back up, spotted the string, and followed it until it disappeared into the sky. Then he looked back down, shook his head, and with a comedian's sense of timing said "Didn't your mother ever tell you not to fly kites next to power lines?"

Humiliated, positively humiliated. But at least he was smiling, and he admitted that calling the power company was the correct and socially responsible thing to do. So he geared up and climbed into the cherry picker.

Initially our plan was to tie the rope to the reel for security, but once up he determined the reel had made a couple loops and twists around the lower wire and there was no way to untangle it with the rope attached. I made sure to tell him to hang on to the reel for dear life, and he started untangling it. (Very frightening to watch him bracing his body against bare wire, even with the proper equipment!)



sitka • continued from page 5

raphy. I went to the storage bin in my garage, passed over the plastic tubing, the aluminum strapping, the small pieces of clear maple, oak, and pine, and selected a ten-foot-long piece of Sitka spruce—a piece that was left over from the construction of my father's airplane, a piece of wood that I have been saving for almost fifteen years. A piece of wood that, from the day it sprouted from the earth, was meant to fly.

I needed less than 16 inches of this wood, but the long piece of Sitka was the proper choice. Sitka is light, straight, rare and beautiful and it is the only wood to use if you are building a flying machine. The real beauty of this choice was that it meant that I could add extra spirit using my old table saw and dado head, drill, tri-square, compass, block plane, sandpaper, jig saw, glue and clamps, and a ruler from my grandfather to assemble the cross and to give it an airfoil profile.

With the addition of a beautiful set of miniature blocks that were a gift from a



very special friend, this suspension system has "the spirit." It has been machined, shaped, touched, and blessed.

Once the Great Eagle perched upon this Sitka's majestic branches; now the great Sitka has been given the gift and it too will fly.

The rewards will be great.

• æ

## KAP in the press

Kite Aerial Photography has gotten an unusual amount of attention in the print media since the first of the year.

Most lavish coverage has been given by *Sport & Design Drachen*, published in Germany and distributed all over Europe. Last fall Wolfgang Bieck negotiated a regular space for KAP in each issue of the bi-monthly magazine, and he is coordinating the series of articles. Two-page spreads have been authored by many of our regulars: Craig Wilson, Steve Eisenhauer, Katsutaka Murooka, and Brooks Leffler in addi-

tion to Wolfgang himself. The series continues.

The Cerf-Volant Club de France devoted nearly all of the January issue of their journal *Le Lucane* to KAP, with many photos.

*Air & Space*, a monthly published by the Smithsonian Institution, gave two pages to Craig Wilson in their March issue, including Craig's very unusual image of the Iwo Jima Memorial in Washington DC.

Steve Eisenhauer garnered seven (!) pages in the March/April issue of *Bird Watcher's Digest*, from which we've gained a couple of new adherents.

• æ

## the autostable kite of s. berthomé

text & drawings by GEORGES GREPIN, Aressy, Bizanos, France

I am extremely interested in stickless kites for low speed wind, as I usually work in remote areas, swamps and wetlands, where it is sometimes difficult to use a large Rokka-ku or delta,

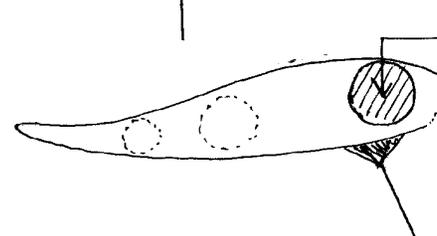
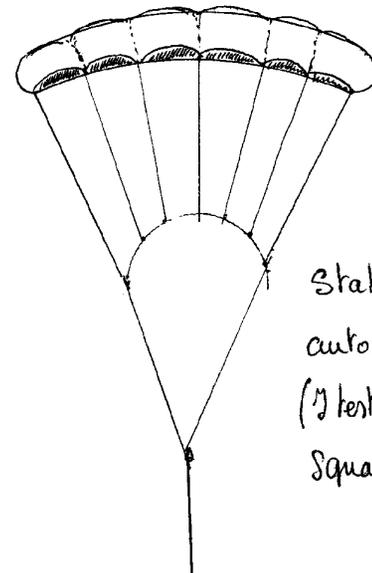
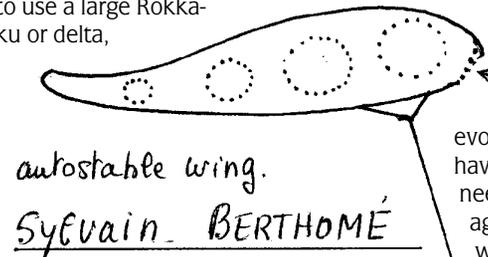
and there is a lack of wind at low altitude

I have tested two models of stickless kites (parafoil type) but I was not confident with these models as I experienced unexpected folding without recovery in unstable winds.

I suppose the technology has evolved now. One of the best soft kites I have tried was designed by a French engineer, Sylvain Berthomé, many years ago...It is based on an autostable NACA wing shape. The incidence of this wing adapts to the wind speed and the lift and drag is reduced in comparison with a Rokkaku when the wind increases. The kite flies well over your head and you need a tail to lower the angle. Due to the small number of lines, it is extremely easy to handle and take off.

I had no chance to use it for KAP, but it's designer had used it for video. ...I think that an inflatable tube inside the wing will avoid accidental collapse. I have no time to build and try this system, but I think it will work well. Anybody interested?

• æ



I think that the use of an inflatable tube inside the wing will avoid accidental collapse.

*measuring kites • from page 4*

be much less than it is 50 or 100 feet up. Therefore the anemometer should be very light and remote-reading. An anemometer using a ping pong ball was developed some years ago\*.

The ball, supported on a fine monofilament line, is blown by the wind until the line is at a certain angle from the horizon. The angle depends on the aerodynamic drag and the weight of the ball. If the angle can be measured the wind speed can be calculated. A ping pong ball is not very large, and the short string length on the ping pong ball might make reading the angle from the horizon very difficult.

Styrofoam spheres hollowed out may be used as a substitute for the ping pong ball. The equations for the larger sphere can be derived from those of the ping pong ball anemometer. The length of the line supporting the ball can be increased greatly so long as its weight and drag are negligible.

Many years ago I reinvented a method of measuring the tension in a kite line. When a known weight hangs from a line under tension the line is bent. If the angles of the ascending line and of the descending line relative to the horizon are measured, the tension in each line may be calculated.

The essential elements are thus available. To apply them is rather easy. A rubber-jawed clamp may be attached to the kite line about 10 feet below the kite. The known weight may be attached to the clamp and the ball line attached to the bottom of the weight. If there is no swivel at the kite and care is taken in launching, there should be no twisting or fouling. The

\* see "The Amateur Scientist, Experiments with Wind: a Pendulum Anemometer and Miniature Tornadoes" by C. L. Strong, *Scientific American*, October 1971.

forces exerted by the ball anemometer on the weight and kite line can be included in the tension calculations.

To obtain meaningful data several conditions must be satisfied. The air flow must be relatively stable. The horizon must be visible. The kite should be a stable flyer. The kite should fly well at an altitude such that the required elements can be readily distinguished in photographs, and all should appear in the same photograph.

In my early experiments my requirements were basic: a kite, kite line, the lightweight anemometer, the weight-string tensiometer, and a good camera in the field; a pair of drafting triangles, a good scale and/or balance, a protractor, a calculator, paper, and pencil.

Before going to the field one weighed the kite, the weight, and the ball. In the field, one person flew the kite and another photographed it. The only skill required was to be at the proper position so that angles were not unduly distorted by parallax and to click the shutter while conditions were stable. As a check on the latter condition several pictures were taken a few seconds apart so that it could be established that conditions were not changing too fast; that is, the kite was not climbing, falling, yawing, etc.

When photographs were printed they were ready for measurement. Paper and photograph were firmly attached together, or to a table, while the measurements were being made. Using triangles and parallel rules, lines parallel to the horizon, kite keel, ball line, and the two segments of kite line on either side of the weight were made on a piece of paper. Angles were measured with a large protractor to achieve as much accuracy as practicable.

• continued on page 22

## sweat the details

by STEVE EISENHAUER

As the wind pulled my canoe across the lake I muttered: "This isn't what I planned!"

The wind was strong. Ten minutes earlier I paddled the green 16-foot Old Towne canoe into lowgrowing reeds and onto a submerged log. The canoe seemed secure so I didn't bother to tie it to a nearby bush.

My two kids were in the canoe's front. They knew their role: dangle hands and feet in the shallow water, pull out a lily pad or two, just stay occupied until Dad's finished flying his kite and getting his aerial photos. It should take about 20 minutes.

The 41-square-foot Marshall delta-Conyne went up quickly: I only had to stand briefly to launch it. At 200 feet elevation I hooked on the 2-channel camera cradle and sent it up 100 feet.

Everything looked fine. Just send the camera up 200 more feet and get some aerial lake photographs. But suddenly a lengthy squeak came from the bottom of the canoe: the unmistakable sound of a Royalex-plastic canoe rubbing across a log. A gust of wind had caught the kite and lifted me and the canoe off the log and into deeper water.

I looked back at my kids, hoping to blame someone else for this situation. But they stared at me with innocence and amusement: "Dad, we're moving."

The kite was pulling hard. The canoe was sailing along. The camera was dropping. I was reeling in line like a madman. But the other side of the lake was drawing near. I imagined my trusty delta-Conyne entangled in a 60-foot-high lake-

side pine tree, and my expensive camera submerged.

Inexplicably, the canoe slowed down, and stopped. My eyes, previously fixated on a falling camera, glanced downward to see a wonderfully-thick mass of black rush: a plant that grows only in very shallow water.

I cranked the camera all the way down without mishap, unhooked it from the kiteline, pushed my canoe paddle deep into the lakebed mud, and tied the imbedded paddle to the canoe. With the kite still flying (safely now) at 200 feet, I paused with my kids and we paid homage to the good luck angels.

After a few minutes, the camera went back up and I got my photographs. The only witnesses to my folly were my kids, and they're so accustomed to my mishaps they often don't tell anyone about them. Now I only have to deal with my image with the 200 subscribers to *æ*. But then you're scattered over 18 countries throughout the globe. I probably won't run into any of you downtown next week when I pick up groceries, and a boat anchor.

• *æ*

*in the winter issue:*

**KAP Electronics**

*Now is the time to report on  
your electronic solution  
to a KAP problem.*

**AD & COPY DEADLINE  
NOVEMBER 1, 1996**

## a neat little book

If you find Bob Price's article intriguing, you may wish to read a new book by Dutch kitemaker Harm van Veen called *The Tao of Kiteflying*, published by Aeolus Press, who produce *Kite Lines Magazine*. Only 56 small pages long, it is packed with kite theory and Harm's wise and whimsical illustrations, and serves as an excellent plain-english discussion of kite stability and how to achieve it. It's \$12.95 plus postage. See Sources, page 28, for ordering info.

### vertical verse

Kind of a new perspective  
Intensive  
Type of new photo  
Evolutionary

And cool too  
Extroordinarily exciting  
Right in every way  
Interesting  
Awesome  
Lights up the sky

Peaceful  
Heck of a new style  
Outrageous  
Takes us everywhere  
Out of this world  
Great and cool  
Really real  
At the click of the shutter...  
Photos are taken above ground  
Heights are unbelievable  
You should try it soon

Casey Wilson  
Madison, Wisconsin

### measuring kites • from page 20

The resulting numbers were used as input to a home-brew computer program to obtain aerodynamic lift (the total of the kite weight and vertical string pull at the kite) and wind speed. The results were plotted. Within the scatter of the data it was possible to detect the wind speed at which the kite would fall and the lift at some standard speed. The latter value, after combination with the kite weight to obtain an L/W figure, could be used to compare two kites.

ENTER KAP

After early experiments, I concluded that data should be obtained at higher altitudes than were possible using a ground-based camera. The kite height was limited by the requirement to see the horizon and resolve the ball, weight, and string in the same photograph. A telephoto lens would permit observation of the kite and instrumentation but the horizon would be below the field of view.

The ability to use a camera supported by a kite has made it possible to obtain good records of kite performance at higher altitude, and still satisfy all the conditions. Camera and subject kite can be well above the ground, the horizon can be visible, and the camera and subject kite can be close enough together to obtain adequate resolution. It is easier said than done but it has been done.

Three expeditions were fielded to Rehoboth Beach, Delaware, and on the third attempt nine usable pictures were obtained out of twelve attempted. About nine usable photographs were obtained with the camera on the ground.

A new approach to record reading was used on these photographs. Though the films were processed as usual to obtain prints, they were also digitized and the images stored as files on floppy disc. The X-Y

coordinates of nine points on each usable photograph were recorded by hand and entered as data to a revision of the computer program, Figure 2. The program computed the angle of the string segments and the kite keel to the horizon. It then calculated the forces and ratios as before.

A typical photograph is shown below. It has been marked to show the points measured on the digital image. The defined lines could also be transferred and measured to obtain the desired angles. The actual coordinates are measurable to about 1 pixel.

Two difficulties were encountered. A point ("4" in Fig. 2) on the kite line about 20 feet below the kite was marked by a ball about one inch in diameter. This indicated the direction of the weight to flier line. The ball was extremely hard to find in the prints and even more difficult in the digital image. The red ball was easier to see but was still too small. The solution to this problem is use of a larger marker painted black. Since it is to be located at the lower end of the string segment leading groundward from the weight, it will have no effect on the kite measurements.

The major remaining problem is positioning the camera so that the proper view is obtained. This is obviously a problem that may be solved by using more observers and/or more sophisticated rigging.

In summary, at the present time several ex-

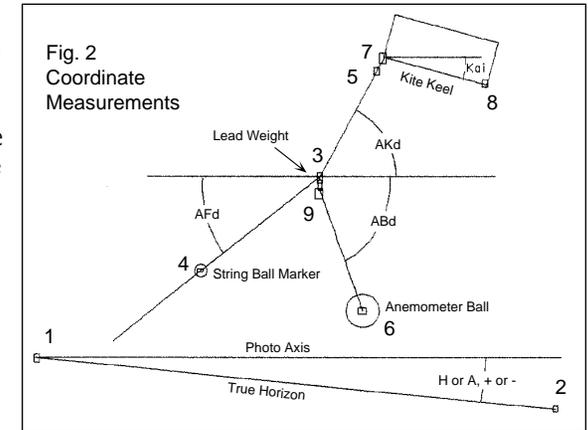


Fig. 2  
Coordinate  
Measurements

peditions have been made to obtain data. Record reading and data processing have been accomplished. The instrumentation has performed well considering the environment and abuse it has endured.

How good is the system? Probably as good as the wind conditions under which the tests were made. There seems to be a direct correlation of the consistency of data with the wind conditions for a series of pictures. Kite height is the second important condition. More data will help in evaluating this technique that does measure the performance of real kites in open air.



**watt happened! • from page 17**

Sure enough, the winds aloft were fearsome and he nearly lost it when the last wrap came off. From the look on his face I'd say he gained a new respect for the pulling power of a 12-foot delta. As we parted I thanked him for coming out at night, and my wife thanked him for not having to listen to me grumble for a week.

I spent the next 1-1/2 hours walking up and down lanes, the road, and the cornfields in the dark dragging that thing out of the sky. At 500 feet the pull was greatly less, and at about 100 feet my kite finally gave up and fluttered down.

The fifth thing I learned is that 2000 feet isn't much across open and smooth ground, but it's a different thing altogether in the dark over cornfields that just re-

**kites & flight • from page 3**

Kitefliers are concerned with having clear land below their kite in flight. With an expensive camera aloft, I'm more concerned with having clear land behind me. Although I don't run when sending kite and camera aloft, I often walk quickly backward to increase the relative wind speed. Walking backward with the wind behind you is a great way to launch your kite when the wind is weak near the ground, or to keep your camera aloft when the wind is intermittent. I like to think I'm too sophisticated to run, but when my \$1,500 video camera is aloft instead of my \$300 35mm camera, running is immediately added to my repertoire of flying methods.

Solo launching of DCs is easy: the box section helps hold the delta section upright on the ground; with a little line tension and a light breeze I can walk 100 to 500' away and long-line the kite into the

ceived 2 inches of rain. At 11:00 I staggered back into the house, culminating my 5-hour "fun fly".

Three weeks after the event I received a call from a company conducting a customer satisfaction survey for the power company. My name had been fed to the pollster "as a person who had some interaction with the utility in the last several weeks."

The power company is generally held in low regard due to their outrageous prices, but it's hard to be critical when one's 12-foot delta and tails with 2000 feet of line and reel attached were rescued at no charge at 9:00 at night by a lineman who was more amused than irritated.

I hope my answers don't skew the results too much.

• æ

air. The box section makes a DC relatively sluggish and stable, and provides a lot of lift; the delta section facilitates launching in light winds. Launching can be the most enjoyable aspect of kiteflying; I love to show off for onlookers: rapidly letting out 200' of line with the kite less than 20' up, the drogue or streamer tails occasionally touching the ground, and then braking the line and watching as the kite rockets in a smooth arc upward to near vertical.

I'm a big hulk of a guy, 6'2" tall and 210 lbs., but I always strive to appear as a graceful kite aerial photographer. It may be an unreachable goal: no one has ever used that word to describe me. But perhaps, as I grow older, less-frequently frenetic and more experienced, the ascension and flight of my wonderful DCs may help transform my KAP style.

The end result may never be graceful. More graceful may be all there is for me, and I'll just have to live with that.

• æ

It was hard to tell who was having more fun — parents and kids building kites, teacher/organizer Jeff Kataoka of the Kite Society of Wisconsin or Craig Wilson, coaxing his pendulum-hung Pentax above dozens of little sled kites fluttering in a gentle breeze over Milwaukee's Lake Michigan shoreline.

The Friday evening before, Craig had given an inspiring talk and slide presentation to a small but enthusiastic group at an exhibition entitled "Play Per View" sponsored by the Milwaukee Art Museum, the Kite Society of Wisconsin and Gift of Wings, a local kite shop.

Seeing Craig's slides and prints first hand was a treat. As a fellow Madisonian, I was familiar with many of his subjects, but the views from above were amazing and almost unimaginable. In his response to questions about technique and equipment, Craig's simple philosophy was evident — that passion and commitment are usually more important than the stuff that gets hung in the sky, or how it happens to get up there.

But back to Saturday! By mid-morning a diverse group of parents, kids and older folks were in full swing at the lakefront Art Museum, designing and building dozens of small sled kites about 28 inches high.

After a hour of cutting, drawing, gluing and affixing line, kids and adults lifted their kites amid the laughter of children, the quiet clicks of rollerbladers easing their way along a nearby lakefront path

**summer sledding**

by PAUL FIEBER, Madison Wisconsin

and the energizing sounds of great classical compositions rolling from huge speakers. What a blast!!

In between all those tiny sleds I had my first experience of flying my new D.C. in a crowd, even though my KAP stuff isn't quite ready for the line. It was a bit scary with all that traffic, but it turns out there really is a lot of room up there. And Jeff was good enough to point out the few plastic kites to avoid because of their nasty lines.

The Art Museum Kite Fly lifted spirits as well as kites. Several adults I spoke with seemed as delighted as the kids, amazed at how much fun they were having and how relaxing it was to build and fly a kite.

And it is quite likely that Craig inspired at least one inner city kid to someday hang a camera in the sky.

It might also be a good idea to keep an eye on Craig. I thought I overheard him saying something about picking up a pair of rollerblades for some reason or another. I couldn't help wondering if he will lace them on before or after his big delta is up.

• æ



CRAIG WILSON

## aerialletters

### CAVEAT BUILDOR

Today I found the weakest link in my system. It was a BROOXES HANGUP™ [æ 1.4]. I was flying a FlowForm 30 because the wind was blowing much more than the delta-train likes. As usual I fixed the cradle with two hangups to the kite line. Suddenly one of them failed. The "side-plate" of the part where the line is looped around came off in such a way that the hangup jumped off the line. Since I use a Picavet suspension there was a second hangup that kept the camera in the sky, so no real harm done.

The reasons for this problem are in my opinion: a) the material I used isn't strong enough; I used plastic from a cutting board, but I'm not sure it is UHMW. b) The pinching forces of the loop in the kite-line are huge. c) The pushing forces of two pieces of line trying to pass in the same gap are important.

Anyhow, I think it is good to think about the hangups if you use a strong pulling kite. Either you use a stronger material (aluminium) or heavy duty hangups. My suggestion for the latter is to use two extra metal side-plates (big washers) and fix them to the standard hangup by means of a bolt and nut. The added weight won't be a problem in those conditions.

Peter Bults  
Holthees, Netherlands

*[This is the first failure of a hangup that I've heard about. I created the device for use with my gear, namely rigs weighing less than 2 pounds (900g) and kites which are comfortable on 220# (100kg) line. I*

*wouldn't use a FF30 in the conditions Peter cites, I'd use my FF16, but if you don't have that option, you have to make do with the kites in your bag. If you're using hangups with heavier rigs or line or in strong winds, be prepared! —bgl]*

### KIND WORDS

I've received the first six issues of **the aerial eye** and am delighted with the treasure trove of information on KAP. Congratulations on a stunning mag!

I have a simple Pentax PC-500 point-&-shoot camera, and have set up a cradle similar to [brooxes better brownie box, æ 1.1] with panning servo and shutter release servo. I am currently flying it with a double delta-Conyne from Into The Wind in a ten foot span; it seems quite stable and lifts the load easily. Hope to get some film in the camera on the next outing, and will let you know if good results begin to occur.

Bob Eskridge  
Miami, Florida

### PETER'S PROGRESS

I own both a Sutton FlowForm 30 and a FlowForm 60. I've had the most luck with the 30 using a donut [Halo hoop winder] and 250lb. line. It has taken some time to move up the learning curve but this combination is what I'm feeling the most comfortable with right now. I've flown the FF60 a couple of times with 500 lb. line but could only fit about 300 feet of it on a 9 inch donut. Also, it can be very hard to handle the line in any kind of a wind.

I've had the idea of eventually purchasing a Strato-Spool winder with a brake. This wouldn't be very portable but could be a way to maintain some control....

I hope to keep working out the bugs with the goal of getting some publishable

KAP photos for [National Geographic Magazine] and, of course, the æ in the future....

It has been hard to experiment while on assignment. I prefer to have my technical house in order before I leave home, but I guess I just sound like I'm making excuses. Perhaps KAP can be both fulfilling and humbling at the same time. A metaphor for life.

Peter Essick  
Brooklyn, NY

### WINDMILLS AUF DEUTSCH

In the last issue of **the aerial eye** I read about the windmill-style camera station of Katsutaka Murooka and got a smile on my face.

Four weeks ago I have finished the work on my newest camera-rig, which takes 8 photos in 360 degrees horizontal like the system from Katsutaka. The horizontal angle is changed by a modified servo which works without limits.

To start the working of the rig, I have to push a switch. Then I have about 45 seconds to get the camera station stable on the altitude. The servomotor gets started from an electronic circuit to leave the stop switch. After that, it will work on until it arrives at the stop switch again. Then it has completed a horizontal movement of 360 degrees. To start the work again, I have to push the start switch once more.

Last Friday, I had the system the first time in the air. Unfortunately, it was a clouded late afternoon and the wind was very slow. I have no results yet, because the film is not full (Waiting for the next event)....

If I have time, I will work out more information about the system (pictures, electronic plans, results...)

Harald Prinzler  
Schlangen, Germany

*[Harald sent us tech specs, but we'll wait until we have pix to accompany them. We look forward to a complete report. —bgl]*

### MORE KAP ON THE WEB

I am a new subscriber to **the aerial eye** and have just received the first issue review. It's very nice! You can find something about my KAP works at

<http://users.iol.it/annagalletti/>

Alberto Bonati  
Imola, Bologna, Italy

These days I am absorbed in making a home page for the Internet. The page contains JKPA members' KAP photos and their information. You will see strange letters on the screen (as the text is written in Japanese), but you will surely enjoy the photos. The home page is expected to develop in future, with more and more photos. You can access the page at:

<http://www.cc.rim.or.jp/~nakajima>

Masami Nakajima  
Narashino-chi  
Chiba, Japan

*[Eye-flier John Maxworthy of North Merick, New York, also had a page several months ago, but I can't find it now.]*

*Cris Benton's venerable KAPage, if you haven't seen it, is at:*

<http://www.ced.berkeley.edu/~cris/kap/>

*We're indebted to Cris's Web site for about half of our subscriber list, and you'll see why. If there are other KAP sites out there that we've missed, let us know! — bgl]*