

PINEY MOUNTAIN AIR FORCE

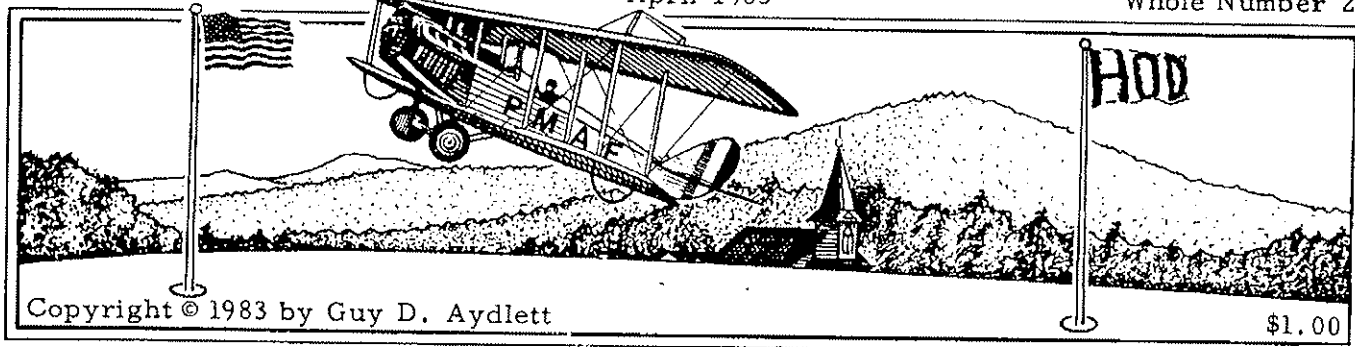
Box 7304 * Charlottesville * Virginia * 22906-7304

DATA ☆ LETTER

VOLUME III, No. 4

April 1983

Whole Number 29



LITHO IN U.S.A.

APRIL, The Fourth Month, brings us the real beginning of fine kiteflying weather; but All Fools Day and Good Friday both occur on the 1st, so be sure to keep activities appropriate for the day well sorted out.

Don't forget, too, that we are already well into Year 2643 of the Japanese Era. Be sure to grace the year with kindness and wisdom.

Remember that Easter is on the 3rd and the Full Moon favors us on ~~17th~~ ^{27th} *Anastasius*, the ~~17th~~ ^{27th}.

DON'T FORGET Confederate Memorial Day, the 26th, in Florida, Georgia, and Mississippi.

HOD TAYLOR, Doyen of AKA kitefliers, says this from his aerie in Austin, Minnesota: "I have a new friend, through correspondence, who is now retiring and has become interested in kites. I am sure that some of the enthusiasm of you oldtime kitefliers should rub off if he could receive the *DATA LETTER* each month, so find subscription enclosed.

"I note your reference to being the Oldest PMAF Troll. Congratulations from another Troll who has already enjoyed eighty-six good and creative years on this earth and is still looking for many more.

"Keep those kites flying high along with the flags." [We'll even tie one on for you, Hod.]

IRASCIBONE TRONE of Nashville says: ". . . DL #28 arrived today [28 Feb.]: Egad—zooks! What became of beloved flagpoles? And this after I toiled several hours over a sweaty, hot computer faithfully digitizing the familiar DL masthead in full color for your archives!

"Is this a permanent revision? . . . Did you get tired of floppy, flapping flags? We are a mite shaken and dismayed—and on the occasion of my renewal, too! I did consider not renewing until you return the ol' favorite 40' erections, but curiosity overcame outrage; you will find a check in here somewhere. But if this is some new sort of contest, let me cast my vote in favor of their return! (Is nothing sacred?)"

[Editorial Note: Dear 'Ras: Take heart. The flagpoles come very close to being monoliths eternal. You'd hardly credit the depths, diameters, and the gross volumes of the high-strength concrete slugs that fix those poles in the flinty turf of Hornbeam Hall. Ultralight fliers and balloonist friends regularly have nightmares and sweaty shakes concerning the mid-runway awesome hazards, but they agree that the masts make bodacious windsocks.

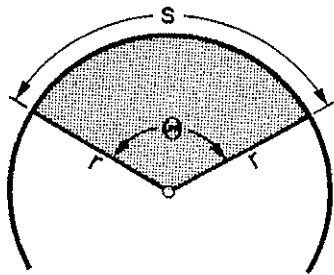
Despite a blue whopper we once told GUST RAGNARSEN (DL #15, page 4) about PMAF's Brobdingnagian wind-gusts, we give you this near-truth: Nisse, The Graphic Arts Troll, sometimes gets a tidy streak, takes artistic license, and unclutters the flip-book masthead now and then; omits—or forgets to include—the flagpoles in the artwork. (We do not attempt Malcolmian feats such as making "Birnam forest come to Dunsinane," but be joyful that in this issue we bring the flagpoles back in honor of HOD TAYLOR, Doyen of AKA kitefliers.) —Non-editor.]

HIGH WINDS at Piney Mountain? It never did take 6 men to hold on to a bottle cork; only 3.

MORE AREA FORMULAS FOR GEOMETRICAL FIGURES

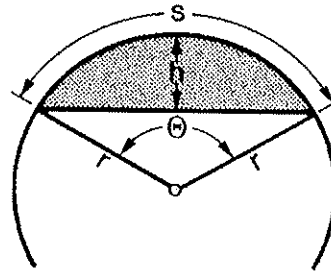
by Mensoo Raishun

THIS SECTION includes formulas for finding the areas of circle parts and irregular shapes:



$$A = 0.5\theta r^2 = 0.5sr$$

Figure 1. CIRCULAR SECTOR
(θ in radians: a circle contains 2π radians.)



$$A = 0.5r^2(\theta - \sin\theta)$$

Figure 2. CIRCULAR SEGMENT
(θ in radians: a circle contains 2π radians.)

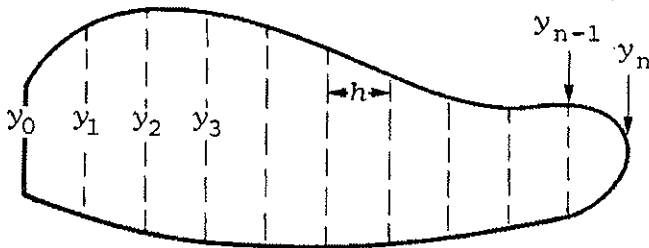


Figure 3. IRREGULAR SHAPE
DIVIDE THE FIGURE into an even number of strips, n , and thus create an odd number of

ordinates y_0 through y_n . Then select one of the four formulas and use it to approximate closely the area of the shape. The formulas are listed in the order in which they usually give increasing area-approximation accuracy.

Prior to World War II, *The Trapezoidal Rule* was a favorite of French and American naval architects; the British liked *Simpson's Rule*.

Note: Some of the approximate formulas are not sensitive to the odd/even philosophy dictated above, but consistency will eliminate some wild results. Note particularly that *Weddle's Rule*—very accurate—uses 6 strips only.

TRAPEZOIDAL RULE: $A = h [0.5(y_0 + y_n) + y_1 + y_2 + \dots + y_{n-1}]$

DURAND'S RULE: $A = h [0.4(y_0 + y_n) + 1.1(y_1 + y_{n-1}) + y_2 + y_3 + \dots + y_{n-2}]$

SIMPSON'S RULE: $A = h/3 [(y_0 + y_n) + 4(y_1 + y_3 + \dots + y_{n-1}) + 2(y_2 + y_4 + \dots + y_{n-2})]$

WEDDLE'S RULE (for 6 strips only): $A = 0.3h [5(y_1 + y_5) + 6y_3 + y_0 + y_2 + y_4 + y_6]$

A QUICK TEST OF THE FORMULAS: Select a quadrant of a circle as a test object. If the radius, r , of the circle is equal to 1.0000, then the area of the whole circle will be π , or 3.1416; therefore, the area of the quadrant is 0.25π , or 0.7854.

Divide the quad into 6 strips, and we have an even number of strips that will also satisfy the restraints of *Weddle's Rule*. As required, n , the number of ordinates, is an odd number of 7 (y_0 through y_6).

The values of the ordinates shown in Fig. 4 were determined with a programmable calculator; rounded off at the 4th decimal place. (Few kitemakers care to work closer than one part in a possible ten thousand.)

Putting the appropriate numbers through *The Trapezoidal Rule* yielded an area value of 0.7657. That is 97.49% of the true value.

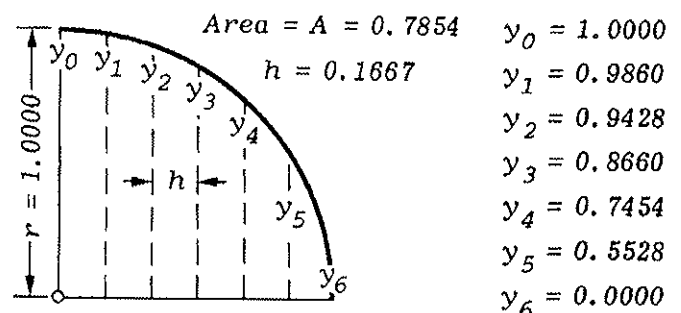


Figure 4. A TRIAL SHAPE (AREA KNOWN)

Durand's Rule gave 0.7746 for area; or an accuracy of 98.63%.

Simpson's Rule gave 0.7777; 99.02% good.

Weddle's Rule gave 0.7791; 99.19% good.

More strips improve the first three rules.

ROTOKI® "BABE"

A Rotor Kite That Employs The Savonius Principle

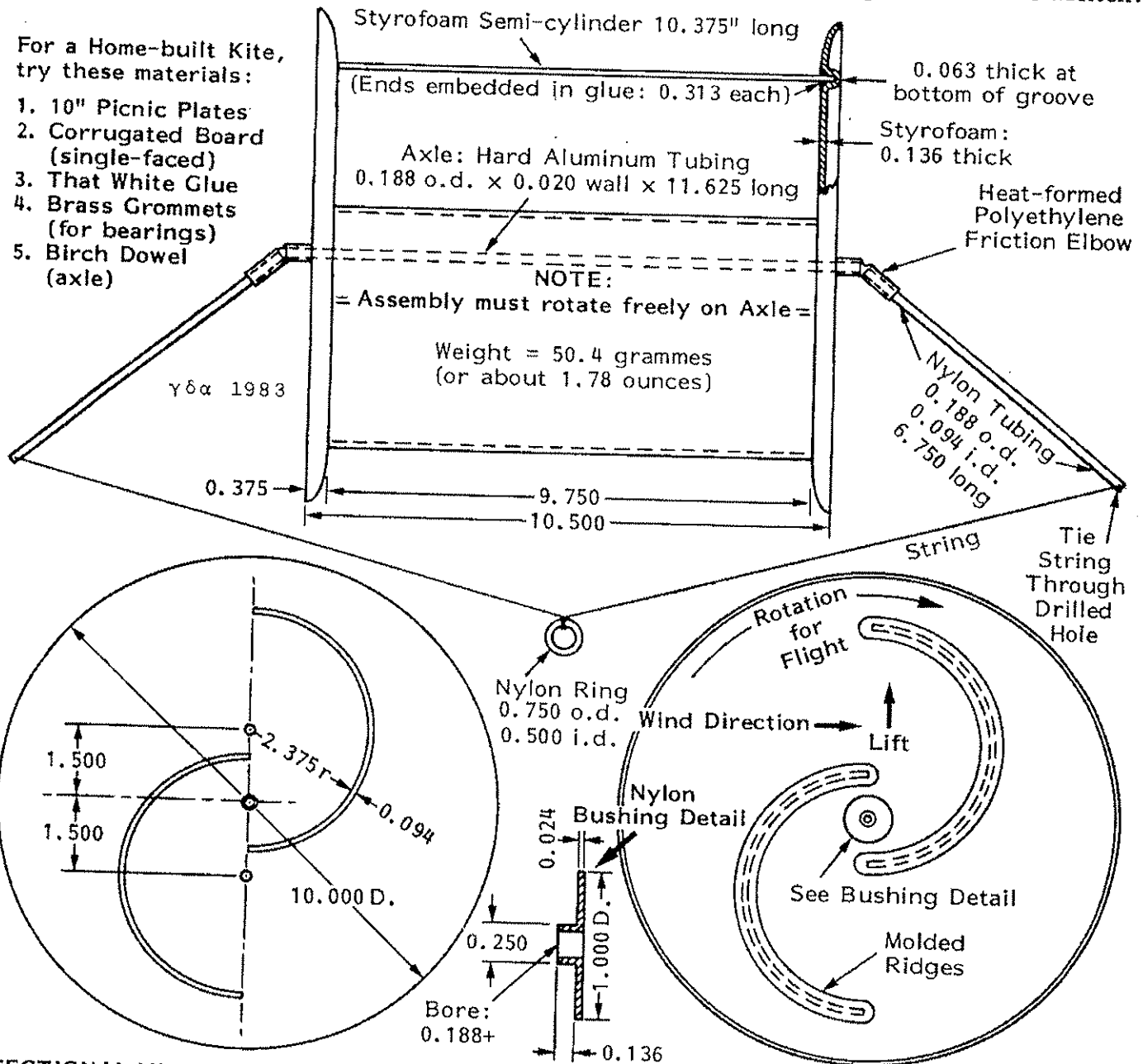
by HORNBEAM THATCH

STANLEY E. ALBERTSON JR. was granted U.S. Letters Patent No. 3,255,985, issued on 14 June 1966, for this lively little rotor kite. "Babe" was preceded by a two-rotor kite: Albertson Patent No. 3,026,073, issued on 20 March 1962. Both kites were marketed for a few months, many were sold and successfully flown, but the venture must not have

been profitable enough to continue. Original Rotoki® kites are unquestionably collectors' items nowadays. Piney Mountain Air Force intends to donate samples to the Smithsonian. PROFESSOR JOHN DOUGLAS FORBES, AKA Life Member, generously gave PMAF assemblies and many spare parts that made it possible for this kite design article to be written.

For a Home-built Kite, try these materials:

1. 10" Picnic Plates
2. Corrugated Board (single-faced)
3. That White Glue
4. Brass Grommets (for bearings)
5. Birch Dowel (axle)



SECTIONAL VIEW (Showing Savonius Vanes)

END VIEW (Shown with elbow tubing removed)

C. R. HENDERSON of Decatur, Georgia uses a quality of calligraphy on his subscription checks and letter envelopes that is the envy of Nisse, The Graphic Arts Troll.

Calligraphy? What in hell is *calligraphy*? Ancient Greeks called it *καλλιγραφία*: *calli* = beautiful; *graphia* = drawing or writing (if you invade that section of the dictionary, do not neglect another useful word: *callipygous*).

We have not yet framed a Henderson check to adorn editorial walls, but they certainly are beautiful—we delay cashing them. . . .

*

LAR, a more informal scrivener from Westborough, Massachusetts supplied this: ". . . Yew reely know how to stimulait someone that's cheap. Tha too frea munths iz kwite an incentive.

"Pleeze start my sisterz subscripshun with VOLLUM III, Numr. 1. Thanks! PAX!—LAR."

*

LYCURGUS GWYNN of Moon, Virginia says: ". . . The Piankatank River Oyster Grabbler Society (PROGS) wants to publish a monthly *vade mecum* in a style and format similar to those of PMAF DATA LETTER. We intend to emphasize technical work above literary content, but we believe we must attempt to establish a high standard of journalism for the enjoyment of our oysterpersons. Are there guides in the aerovane category that might also be useful to an editor for the PROGS own publication? Could you list some titles for us?" [With pleasure. Some good titles are below.]

Dible, Donald M. (Editor). *What Everybody Should Know About Patents, Trademarks, and Copyrights*. Fairfield, CA: The Entrepreneur Press, 1978.

Fowler, H. W. *Modern English Usage*. Oxford University Press, 1926. (Fowler's is a

dictionary of *British English*, not American. Professor Kolb says "it remains a curmudgeonly classic." Perhaps that is why Fowler is a favorite of one denizen of Hornbeam Hall.)

Kolb, Harold H. Jr. *A Writer's Guide (The Essential Points)*. New York: Harcourt Brace Jovanovich, Inc., 1980.

Merriam, G. & C. Company. *Webster's New Collegiate Dictionary*. Springfield, MA: G. & C. Merriam Company, 1977.

_____, *Webster's Instant Word Guide (35,000 words spelled and divided.)* Springfield, MA: G. & C. Merriam Company, 1972. (Keep this one beside your typewriter.)

Morris, Wm. (Editor). *The American Heritage Dictionary of the English Language*. Boston: Houghton Mifflin Company, 1979. (Note: PMAF recommends this edition over its immediate successor. Hang on to those old dictionaries. For example, we had to get the definition of *vade mecum* from *Webster's 5th.*)

Rice, Don. *How to Publish Your Own Magazine*. New York: David McKay Company, 1978.

Shaw, Harry. *Punctuate It Right!* New York: Barnes and Noble Books, 1963.

Strunk, Wm. Jr. and White, E. B. *The Elements of Style*. New York: Macmillan, 1979.

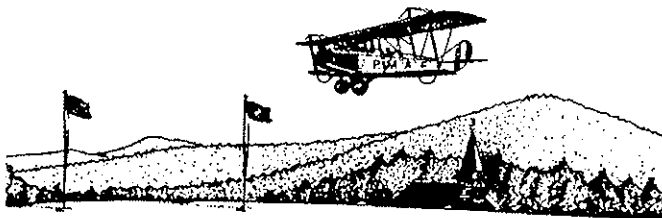
Van Uchelen, Rod. *Paste-Up (Production Techniques and New Applications)*. New York: Van Nostrand Reinhold Company, 1976.

And get a BIG calendar and a good printer.

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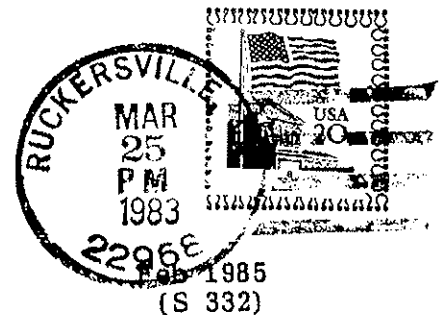
CALEB METOMPKIN, Oyster, Virginia: ". . . As editor of *The Boisterous Oyster*, our best newspaper, I think PMAF DATA LETTER has deficient style and format. I'd like to send you a list of helpful books." [We'd like that list; and by the way, PMAF did not start the rumor that the Eastern Shore is a mosquito hatchery that floats between The Bay and the Atlantic.]

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