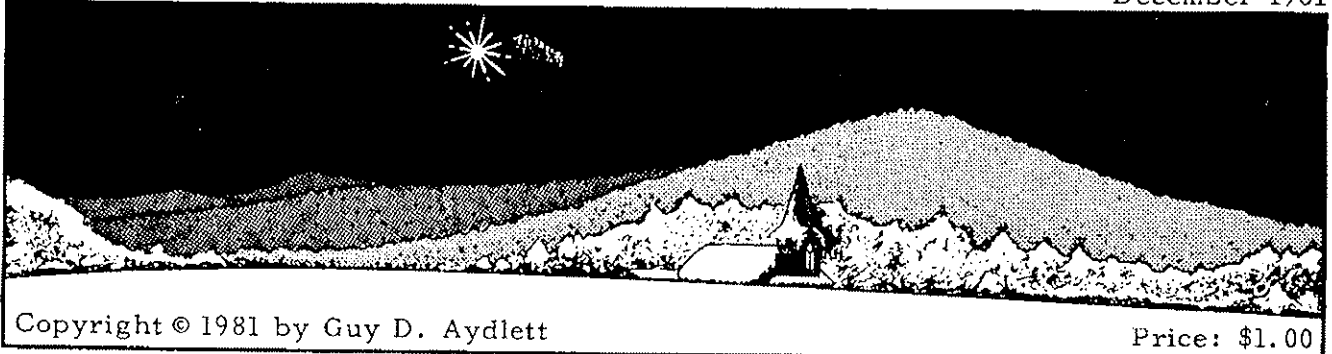


# PINEY MOUNTAIN AIR FORCE

## DATA - LETTER

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Dear Kiteflier:

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WINNERS of the ANTIQUE AIRCRAFT QUIZ (see DL No. 10) were: GARY J. HINZE, of San Jose, CA (KITEFLYER); VERMON C. LEONARDO, Newfield, NJ and FRANK L. LIESE, Lakehurst, NJ (TIGHT LINES); RICHARD W. WOHLERT, Buffalo, NY (AKA NEWS); JOHN F. VAN GILDER and ELLIOT N. COUDEN, both of Seattle (WKA NEWS). (Gary's answers were the most complete.)

Each winner has been notified that he will receive a one-year extension subscription to the kiteletter in which he saw notice of the contest; in addition, each will receive a one-year subscription—or extension—to Piney Mountain Air Force DATA-LETTER. The DL editor and the trolls extend hearty congratulations to the six astute kitefliers.

Now, about those identities: The airplane was a 1929 Consolidated Fleet Model 1 biplane; a strongly built, fully aerobatic aircraft that needed its strength, for it tended to be a flat-spinning mankiller. Otherwise, it was a real sweetheart to fly. The engine was a radial, seven-cylinder, air-cooled Warner "Scarab" that delivered 110 h.p. at 1850 r.p.m.; propeller, Hamilton Standard.

The pilot? Some guesses ranged through PAUL GARBER, EDDIE RICKENBACKER, JIMMY DOOLITTLE, DOUGLAS CORRIGAN, FRANK TALLMAN, LINDBERGH, and even ROY BROWN, the Canadian who shot down "Red Baron" MANFRED von RICHTHOFEN.

Those guesses were wrong. Contestants who guessed DUDLEY GATTY, ADLYYG T. UDET, TOBY WEST, TEDDY U. GALTY, KENNETH BRUGH, or HORNBEAM THATCH were closest to being spot-on. All six fliers were known to have flown Old NC8614 back in the 1930's; rugged survivors, all. . . .

\*

O. S. MARKHAM of Montreal sends this: ". . .Enter my subscription.

"For a large city, Montreal is devoid of kites; and as a result, my kiting here is done solo. That's all right as far as it goes, but I'd like to have some others to trade ideas and yak with.

". . .I'm looking forward to reading your DATA-LETTER."

Ozzie Markham voluntarily took early retirement to live the good life and to fly his kites. It is hard to imagine "Montreal is devoid of kites," especially those who'd like to talk kites and swap ideas. Whatever happened to Montreal's HUGH HARRISON, avid kite designer and AKA life member? PMAF will forward letters from anyone who wishes to fly, talk, and swap with Ozzie.

\*

LARRY MOELLER'S stationery features extremely long dachshunds—ultra dogs. He says: "Received. . .PMAF DATA-LETTER today and note that back issues are available [They still are, but No. 3 is getting in short supply.] My compliments on V.1, No. 8. . .my check for the first seven 'Letters' is enclosed. Pax, . . ."

# GUTTING THE ELLIPSE

by Hornbeam Thatch

AN ELLIPSE is a closed curve whose points all satisfy the condition that the sum of the distances from any point on the curve to a pair of focal points is a constant value.

In Figure 1, F and F' are two arbitrary reference points—foci—contained in the horizontal line X'X. Points P and P' are any pair of points on an elliptical curve. By the definition of an ellipse given above:

$$FP + F'P = FP' + F'P'$$

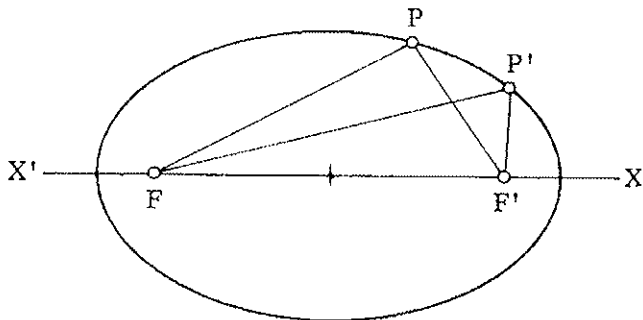


Fig. 1—The Basic Geometry of an Ellipse Generated by the Cord-loop Method

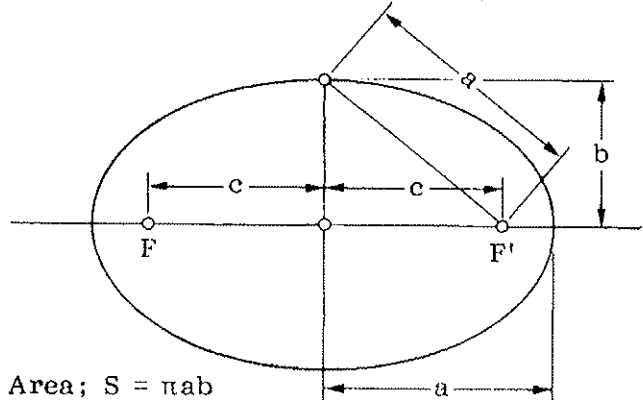
It is tempting to believe that aeons ago, some frivolous lout may have tied a flexible thong in a loose loop around a pair of trees (F and F' in Figure 1) and discovered if he kept the loop tensioned with an inserted pointed stick (P), he could move around the tree—always maintaining uniform tension—and cause the point of the stick to trace a pretty shape—ellipse—in the soil. In time, he and his chums would have discovered that lengthening or shortening the loop caused the generated shape to change its proportions: long loop, rounder ellipse; short loop, flatter ellipse.

In our era, clever gardeners still employ the same layout principle to generate elliptical formal garden shapes; a pair of round pegs, a smooth, stretch resistant piece of cord, and a pointed stick are the only tools needed to effect a satisfying ellipse. Similarly, a cabinetmaker may drive a pair of nails—foci—in a board, and use his pencil and a loop of string to generate an ellipse.

ELLIPSES are beautiful shapes against the sky. Remember the brave wing planform of Britain's *Supermarine Spitfire* in WW II?

Figure 2 shows how even a lumpish geometer can lay out foci locations if he knows the height and width of a desired ellipse:

Call the half-width "a" and the half-height "b"; then use the formulae or layout hints.



Area;  $S = \pi ab$

Focus Location Dimension;  $c = (a^2 - b^2)^{\frac{1}{2}}$

Cord Loop Length;  $L = 2(a + c)$

Fig. 2—Foci Layout Parameters

POCKET CALCULATORS of great precision can be bought for under ten dollars these days. With the aid of that drudgery-killer and the accurate ordinate values (heights as percentages of "b") given in Figure 3, you may plot a ten-point quarter ellipse to any scale. Divide "a" into ten equal spaces and erect the ordinates at the divisions:

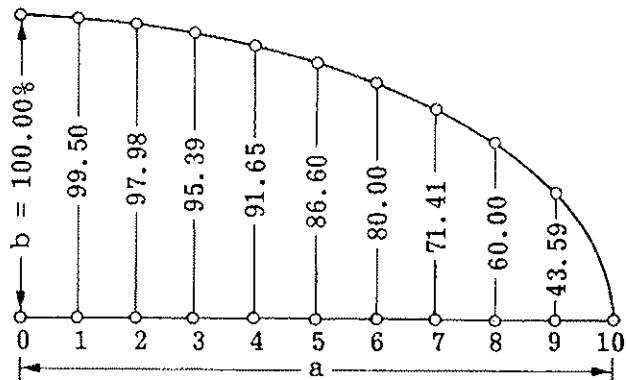


Fig. 3—Ellipse Layout with a Calculator:

- 1) Divide "a" into ten equal spaces
- 2) Ordinates are percentages of "b"
- 3) Connect the points with a fair curve

MATHEMATICALLY INCLINED KITEFLIERS may be pleased to use this ellipse equation:  $x^2/a^2 + y^2/b^2 = 1$ ; or:  $y = \pm b/a (a^2 - b^2)^{\frac{1}{2}}$ .

Eccentricity,  $e = (a^2 - b^2)^{\frac{1}{2}}/a$ .

Also,  $x^n/a^n + y^n/b^n = 1$  yields a whole family of interesting shapes: Try and see; or look up *Scientific American*, Sept. 1965, pages 222-34, "Mathematical Games" Dept.