

THE WORD CALCULATOR

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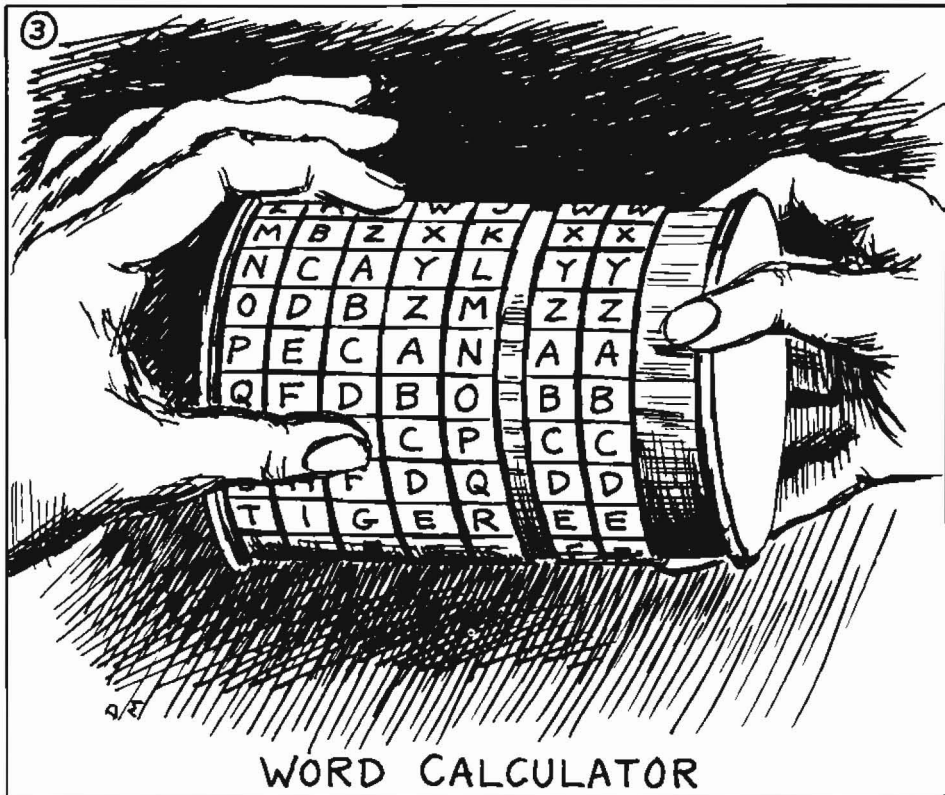
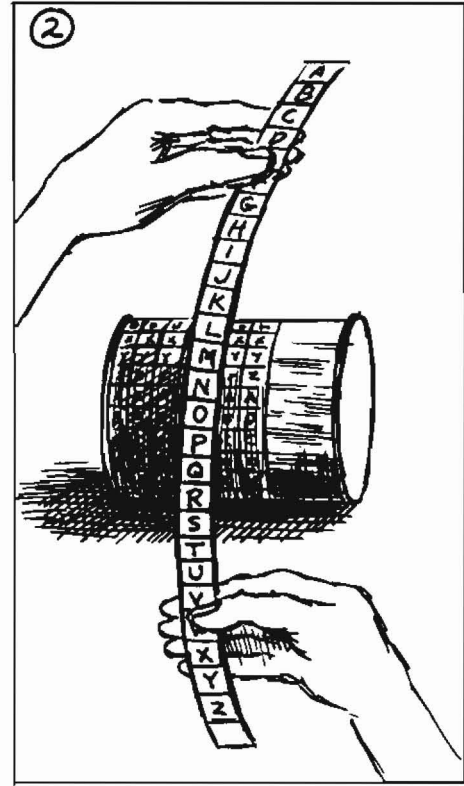
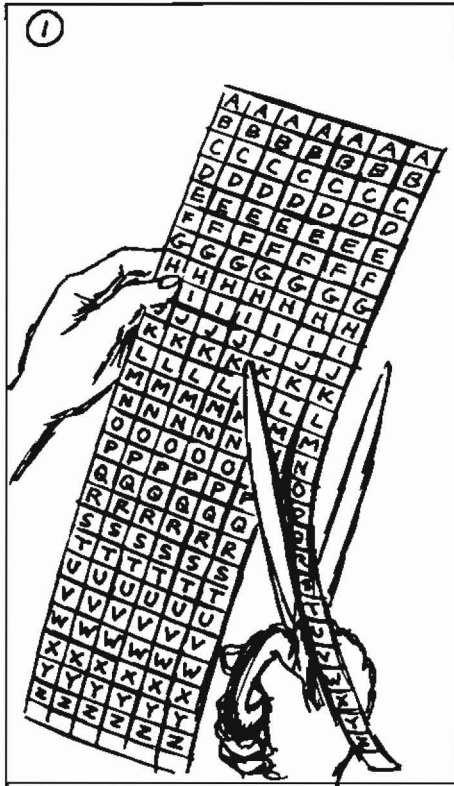
In letter-shift word pairs, the letters in one word are an equal number of alphabetic steps away from the corresponding letters in the other word. CHEER to JOLLY is perhaps the most well-known example, with a letter-shift value of seven (C to J, H to O, etc.). FAT to NIB with a letter-shift value of eight works the same way, except the shift from T to B involves counting letters on a circular alphabet where Z is followed by A. Because the letters are equidistant, letter-shift words can be considered parallel to each other.

The search for letter-shift words involves large quantities of letter strings, since each word has 25 parallel strings. Writing down so many strings is slow, tedious work. A computer can be programmed to print them out or display them on a screen. However, the Word Computer, discussed in this article, is an inexpensive alternative that works nearly as quickly. An easy-to-build, hand-operated mechanical computer, it consists of a soup-can with seven loops of paper around it. Each loop has the letters of the alphabet printed vertically. The loops can be individually rotated to spell a word in one row, producing parallel strings in the other 25 rows.

It's easy to construct. Draw seven letter strips on a piece of paper (see STRIP on the next page). Cut them out vertically (see illustration 1). Wrap each strip around an unopened soup-can (illustration 2) and glue the A square over the blank square. Careful measurement is essential for a good, workable calculator. The letter strips should be slightly longer than the circumference of the can, and the individual squares should be nearly equal to each other in size.

When it is finished, you should be able to rotate the strips to spell a word, and then rotate the can to look for other possible words (see illustration 3). During the search, you can turn other loops to explore other possibilities as they appear. (You can't hunt down leads like this with a computer programmed to crank out columns of letter strings. Although the calculator is slower than a computer, it is actually more manipulable.)

Using the Word Calculator, I have discovered several letter-shift word pairs overlooked by Eckler in his November 1979 Word Ways article, "Alphabetical Letter-Shifts": 5 avo/fat, 10 reed/boon, 13 ebbs/roof, 1 inks/jolt, 6 john/punt, and 1 odor/peps. There are 23 letter-shifts of five letters given in his article; I was able to locate four more in the Pocket Webster dictionary: 4 alkyd/epoch,



STRIP

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z

9 river/arena, 8 tsars/baiza, and 1 steer/tuffs.

One can generalize letter-shifts to word-pairs, word-triples or word-quadruples having different numbers of letters, with occasionally droll results:

PANIC	GLASS	JINX	PHONE	FRIEND	.HOOD.	SUBTLE	BREAST
TERM.	.PEW.	.JOY	CUBA.	...FOE	ZIPPER	.BIAS.	.VIEW.
LATTER	LIVELY	.GOOD.	HATING	THING	AMPLE	HONEY	HOLE
FUNNY.	.BOXER	SWEETS	BUNCH.	.NOT.	CORN.	NUT..	TAX.
				..PUN	.BEAT	.BAR.	.HEX
JOLLY.	SAD...	MODEL	SIREN	...MY	.DAMN.	.HEAR.	HIP..
CHEER.	.BEING	.SHIP	BRAN.	DREAM	BURDEN	.DAWN.	GHOST
PURRED	EMPTY.	..TUB	..BOX	MAN..	..COPY	BURNER	NO...
							TUB..

LIVING

ROBOT. L A P
 HERE.. A P E
 DAN... P E T
 BY....
 I.....

One can also construct a letter-shift pyramid as well as a three-by-three word square in which each letter is fifteen steps away from the one to its right and the one below. Can anyone discover a seven-step or even an eight-step letter-shift pyramid?

To conclude this article, here is a ballad composed in letter-shift couplets. In each stanza, the words in the first line have been shifted by a constant value to generate the words directly below them in the second line. The third line shifts by the same value to generate the fourth line. The shift values are different for each stanza - 22, 6, 11 and 14, respectively.

JOLLY CHEER

Ferns stir pear sap. Fix tie. Get
 banjo open. Lawn owl bet pea cap.
 Alex, woo her, tiger, sex hero. Pet
 what ass, Dan? Pecan oat, dank lap.

Munch wolf muffs by bum. Oafs win
 satin curl, Sally. He has ugly cot.
 Yak! Boa! Bulls punt gulls! Wits' bin.
 Sue, hug Harry. John, marry cozy, hot.

Hide hats, Pat. Id spat rape.
 Stop sled! Ale to Dale. Clap
 nth odd pit, axe. Pet spits ape.
 Yes, zoo ate lip, ape dated lap.

Dune ad: Tube tab, oaf. Pup, damp van.
 Ribs or hips? Hop cot. Did road job.
 Papa met me, babe. My fake name ran
 Dodo ash as pops. Am? Toys, boa's fob.