

# Illustrations From *The Icon Newsletter*

Madge T. Griswold and Ralph E. Griswold

The Bright Forest Company and The University of Arizona



Several persons have asked about the graphics that we've included in recent *Icon Newsletters*: where they come from, how they are produced, and so forth. This is a response to those questions.

We've been interested and involved in computer-based document-preparation systems since the early 1960s. We started with TEXT90, which ran on an IBM 7094 and produced formatted line-printer output from text and commands entered from punched cards. We "graduated" to TEXT360 with the arrival of an IBM 360, and have been through many systems for document preparation since then.

The first *Newsletter* in 1978 was prepared using Nroff and printed on a typewriter-like terminal. We progressed to Troff and a Varytper CompSet typesetter with *Newsletter 2*. When our department got LaserWriters, we started to use one as an output device for flexibility and convenience, beginning with *Newsletter 23*. Since then, our department has acquired an L-300 laser imagesetter (which has a maximum resolution of 2540 dpi). We used this as the output device for *Newsletter 25*, although we presently use a LaserWriter for convenience and economy.

With *Newsletter 25*, we switched from Troff to Xerox Ventura Publisher, a desktop publishing system that runs under MS-DOS. This system gave us more flexibility in layout and the ability to include graphics. The first graphic was an Icon mascot.

We decided it would be interesting and fun, as well as increasing its visual appeal, to add more graphics to the *Newsletter*. With some reservations, we announced a contest for an Icon logo and encouraged the submission of "clip art" related to Icon.

Since that time, we've published contributions from our readers and added some graphics of our own.

It was no surprise that most of the submissions came from persons using Macintosh paint and drawing applications. While we were able to convert these graphics for use in Ventura Publisher, the superior capabilities of the Macintosh for desktop publishing became clear to us.

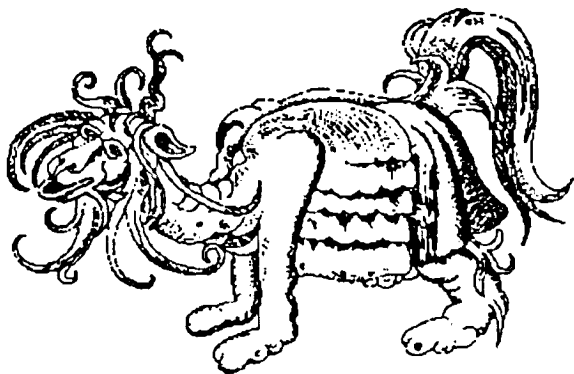
Starting with *Newsletter 29*, we've used Aldus PageMaker (and a variety of graphics applications) on a Macintosh II.

The rest of this document presents the graphics that have appeared in the *Newsletter* so far, and gives a little information about them. At the end, we list the tools we've used in the preparation and publication of these graphics.

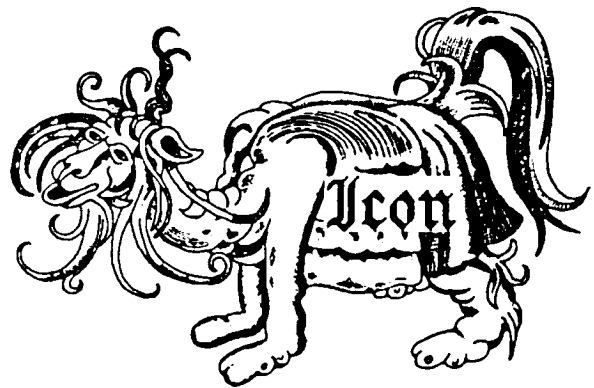
This document is divided into separately numbered sections to facilitate revision when new graphics are added.

## The Icon Mascot

The first version of the Icon mascot was taken from public-domain clip art in MacPaint format (72 dpi):



The present version, shown at the right, was scanned at 300 dpi from one of the many volumes of copyright-free art in the Dover Pictorial Archive Series: *Treasury of Fantastic and Mythological Creatures*, Richard Huber, Dover Publications, Inc., 1981:

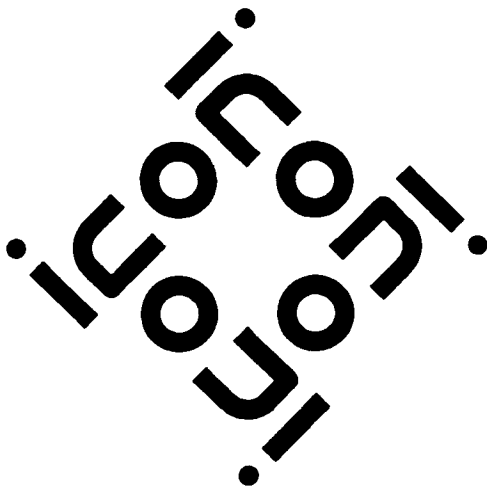


The Icon placard was grafted onto the side of the mascot by pasting text created in MacPaint into the scanned image, using C-Scan, the scanner control program. Notice the improvement in image quality obtained by using a higher resolution.

The beast itself is identified only as "Animal", from a 16th century French engraving by Noel Garnier. We call this joyful beast Plume (pronounced "Plumey").

## Official Icon Logo

We chose the official Icon logo from those submitted on the basis of its artistic merit, simplicity, and suitability for use in a variety of contexts:



This logo, which first appeared in *Newsletter 27*, was designed by Gregg Townsend and implemented with a user-defined PostScript font. The logo itself is encapsulated PostScript (EPS), which can be imported by many graphic applications and desktop publishing programs.

For PostScript buffs, here's the entire EPS file:

```
%!PS-Adobe-2.0 EPSF-1.2
%%Title: iconlogo
%%Creator: Gregg Townsend
%%CreationDate: Mon May 8 1989
%%BoundingBox: 190 364 422 596
%%EndComments
%%EndProlog
%%Page: 1 1

% an Icon logo

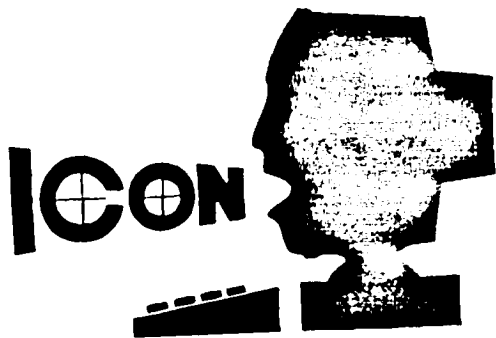
% proc to draw "ico" at (0,0), size
(22,12)
/ico {
  2 setlinewidth
  0 setlinecap
  1 setlinejoin
  1 0 moveto 1 8 lineto stroke
  1 11 1 0 360 arc fill
} i
  12 1 moveto 5 1 lineto
  8 4 3 180 90 arcn
  12 7 lineto stroke
} c
  18 4 3 0 360 arc stroke
} o
} def

% proc to draw "ico" tilted n degrees
% and translated to allow interlock
/tilt {
  gsave rotate -18 6 translate ico
grestore
} def

% proc to draw a logo centered at (0,0)
% max extent is +- 25.042 in both x and
y
/icon {
  45 tilt
  315 tilt
  225 tilt
  135 tilt
} def

% draw the logo once, and print
306 480 translate
4.6 4.6 scale
icon
showpage
```

## From Our Mail



One of the regular features of the *Newsletter* is a collection a questions and answers. The graphic above, which first appeared in *Newsletter 26*, identifies this feature. It was designed by Vint Blackburn and Kelly Tracy of the *Mad Statter*. The original drawing, which was rendered in India ink, was scanned at 300 dpi and stored in TIFF format.

## Programming Corner



Material related to programming appears on an irregular basis in the *Newsletter*. The graphic above, which first appeared in *Newsletter 26*, identifies this feature. This graphic also was designed by Vint Blackburn and Kelly Tracy and prepared for publication in the same manner as the previous one.

## Masthead Dragon

We found this one in the *Potpourri* collection of EPS clip art from *Kwikee In-House Pal*.

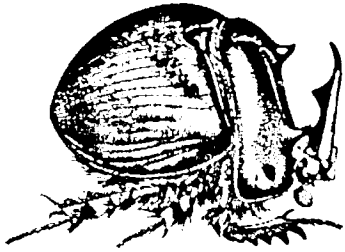


This dragon has no Icon-related significance — we just liked its attitude.

## Bugs

From time to time we admit to bugs in Icon. While "bug" technically refers to insects in the order Hemiptera, the term commonly is used to cover a variety of creepy crawly insects. Certainly, as applied to software, "bug" has a broad interpretation. For the *Newsletter*, we scan drawings of interesting insects from old books that are no longer under copyright.

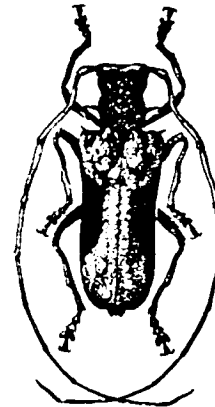
This fellow, which appeared in *Newsletter 27*, is a beetle: *Blackburnium caviocolle*, Geotrupidae (no relation to Vint Blackburn, mentioned above):



Next was a cricket, *Australostoma opacum*, Stenopelmatidae, which appeared in *Newsletter 28*:



This beetle, *Petrognatha gigas*, F., appeared in *Newsletter 32*:

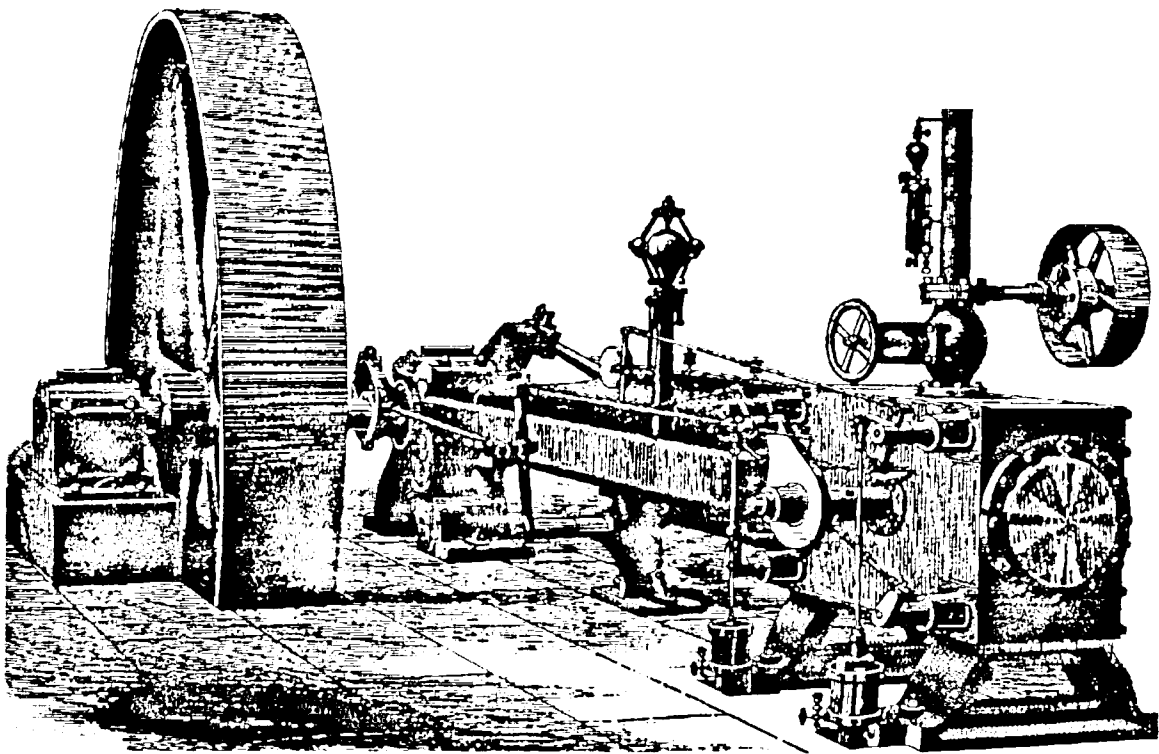


We have a lot more where these came from, but we're not out creating bugs in Icon just so we can add some interesting pictures.

## Inside Icon

Another semi-regular feature of the Newsletter is a column that discusses various aspects of the implementation of Icon. This column is identified by pictures of machinery and mechanical contrivances.

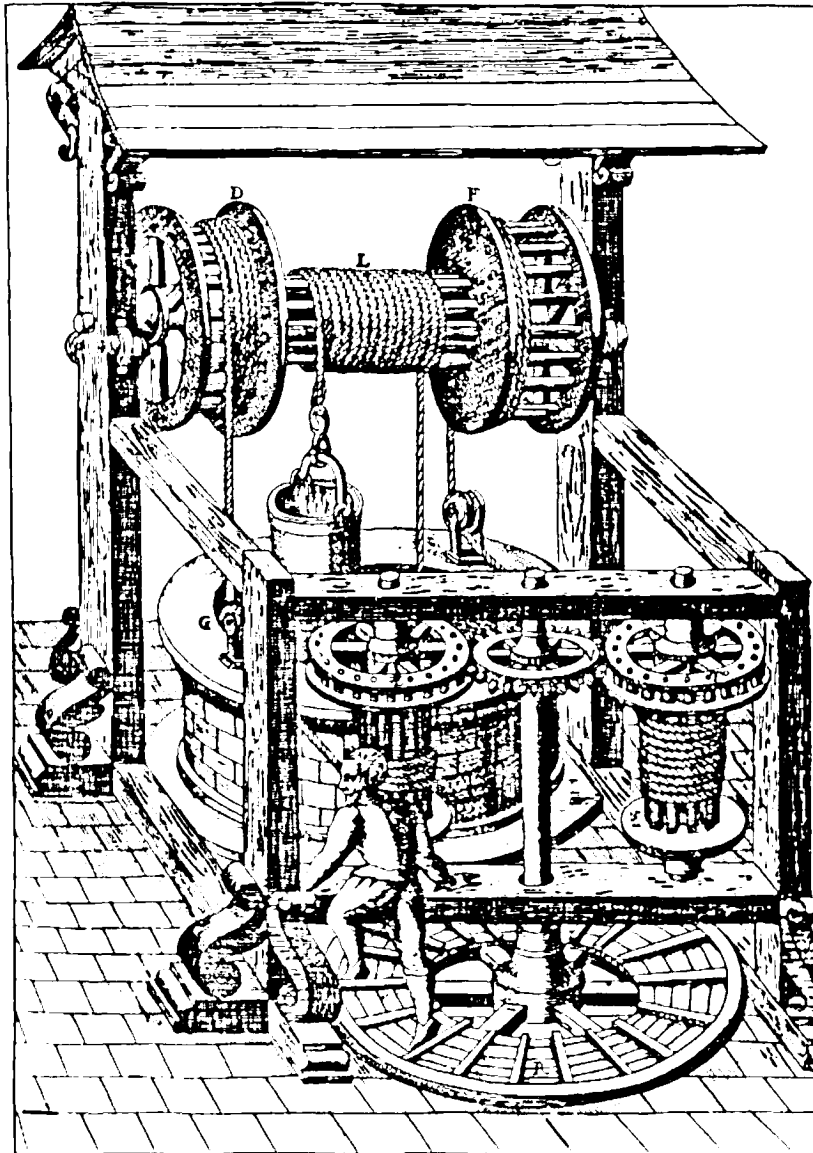
In *Newsletter 27*, the graphic was taken from *Machinery and Mechanical Devices; A Treasury of Nineteenth-Century Cuts*, William Row, Dover Publications, Inc., 1987:



This graphic is part of a composite, identified as "Smiths's Flour-Bolt Knecker".

It was scanned at 300 dpi and extraneous parts were cropped out using C-Scan.

In *Newsletter 28*, the graphic was taken from *The Various and Ingenious Machines of Agostino Ramelli*, Dover Publications, Inc., and Scolar Press, 1976:



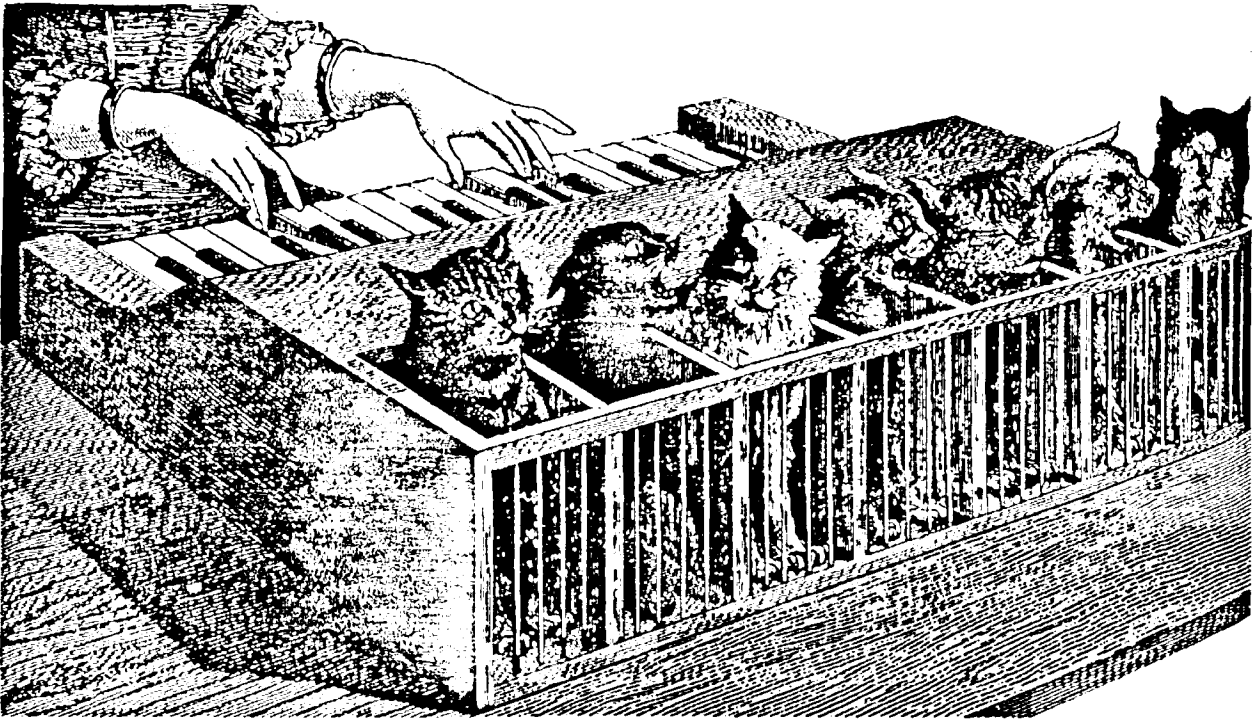
This is Plate 80, "Machine to draw water easily from a very deep well with the help of one man".



## Language Corner

A column that discusses various aspects of the Icon programming language itself also appears irregularly. This column is identified by graphics with a musical flavor.

The first graphic appeared in *Newsletter 32*, and was taken from *Music: A Pictorial Archive of Woodcuts & Engravings*, Jim Harter, Dover Publications, Inc., 1980:

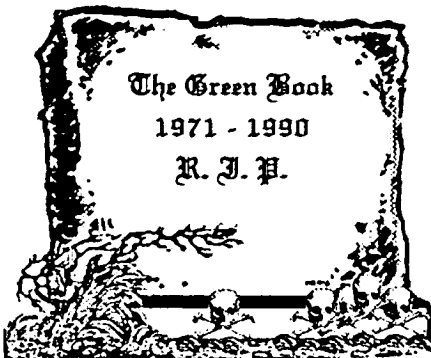


## SNOBOLA

A column on the SNOBOLA programming language was started in *Newsletter 33*. This snowflake is from Adobe Collector's Edition — Patterns and Textures:

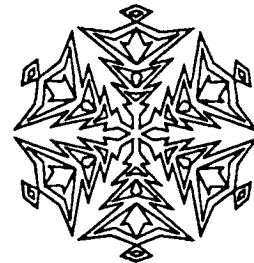


In *Newsletter 34*, the tombstone below was used to mark the passing of the SNOBOLA "Greenbook".



The tombstone was drawn in a Macintosh paint application by Vint Blackburn. The underbrush was scanned from a grave scene in *Old-Time Advertising Cuts and Typography*, Stephen O. Saxe, Dover Publications, Inc., 1989. The skull was scanned from *Handbook of Early American Advertising Art*, Clarence P. Hornung, Dover Publications, Inc., 1956. The final image was assembled and composed in Adobe Photoshop by Ralph Griswold. The inscription, using Adobe Linotext, was added as a text block in Aldus PageMaker.

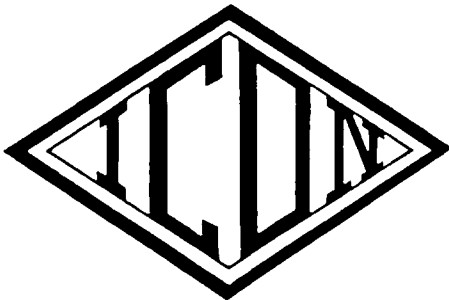
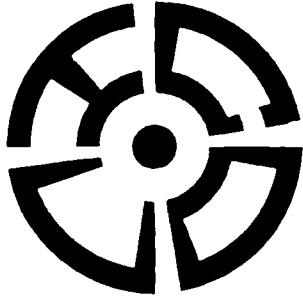
In *Newsletter 36*, it was back to snow flakes. This one is from Somak LaserArt CD-ROM Volume 1.



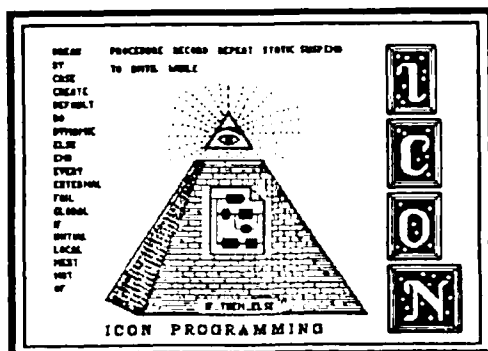
## Other Graphics

The first contributions of graphics from readers appeared in *Newsletter 26*.

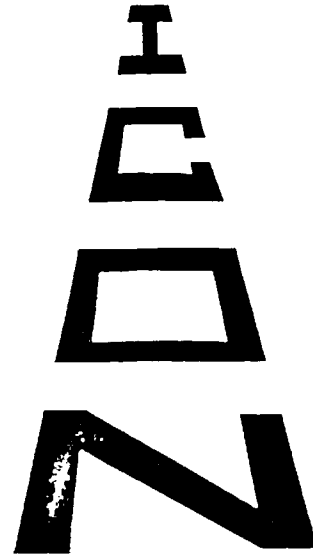
The following two, by Robert Gray, were done using Adobe Illustrator:



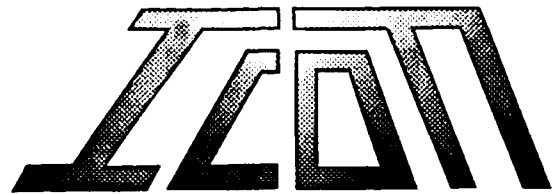
Richard Colvard did this one, using MacPaint, SuperPaint, and Canvas:



This one is by Mary Fletcher, done in PostScript:

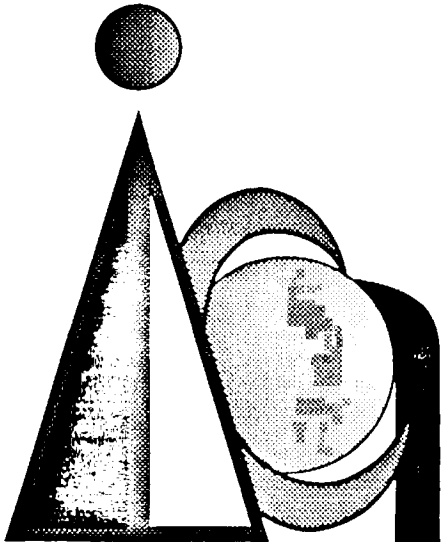
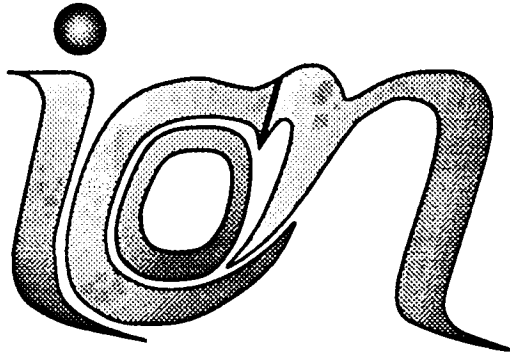


And finally, a contribution from Benson Cardon, done using Cricket Draw:

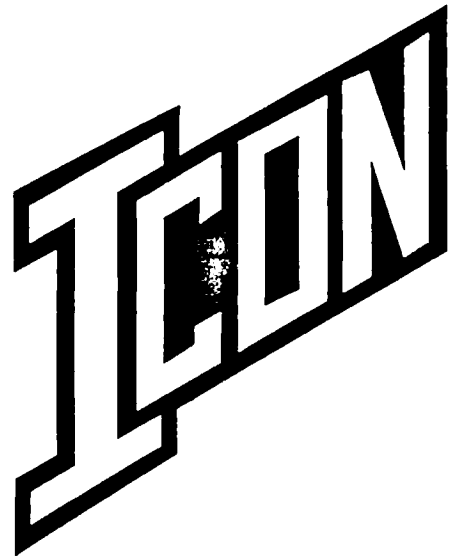


The following contributions from readers appeared in *Newsletter 27*.

These two were done by Jacques Nel, using Cricket Draw:



This one is by Jack Radley, using Adobe Illustrator:



In *Newsletter 28*, four graphics contributed by readers were printed.

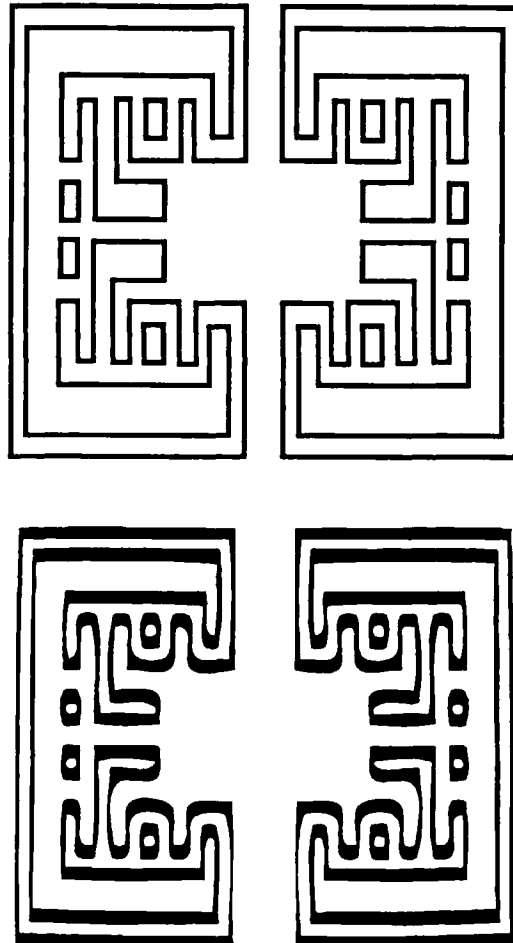
This one, by Jacques Nel, was done as a high-resolution bitmap in SuperPaint. We autotraced it in Adobe Illustrator 88:



This drawing of a Trukese love stick was done in pencil by Alan Davis. We scanned the drawing and autotraced the result in Adobe Illustrator 88:

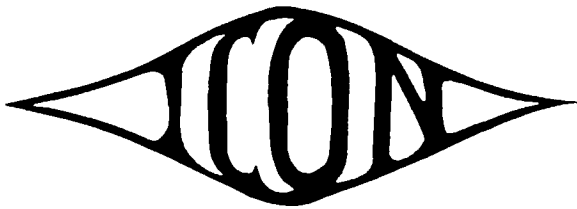


The following two graphics were derived from printer output done on an Atari ST by Charles Richmond. We scanned the printed output and drew over the resulting bit map in Adobe Illustrator 88 to produce the first one. We produced the second one by autotracing in Adobe Illustrator 88:

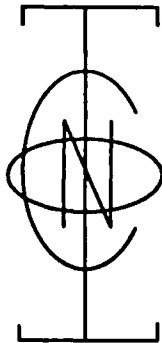


Several more graphics were published in *Newsletter 29*.

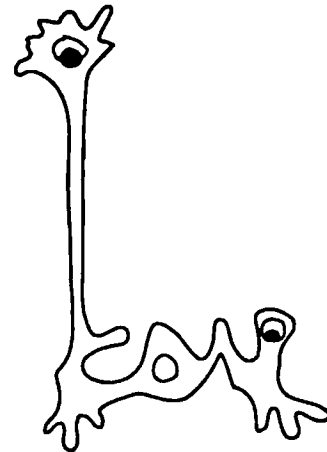
This one by Benton Carter was a pencil drawing. We scanned and autotraced it in Adobe Illustrator 88:



This monogram was submitted in pen and ink by Fleming Rembish. We scanned it and hand traced it in Adobe Illustrator 88:



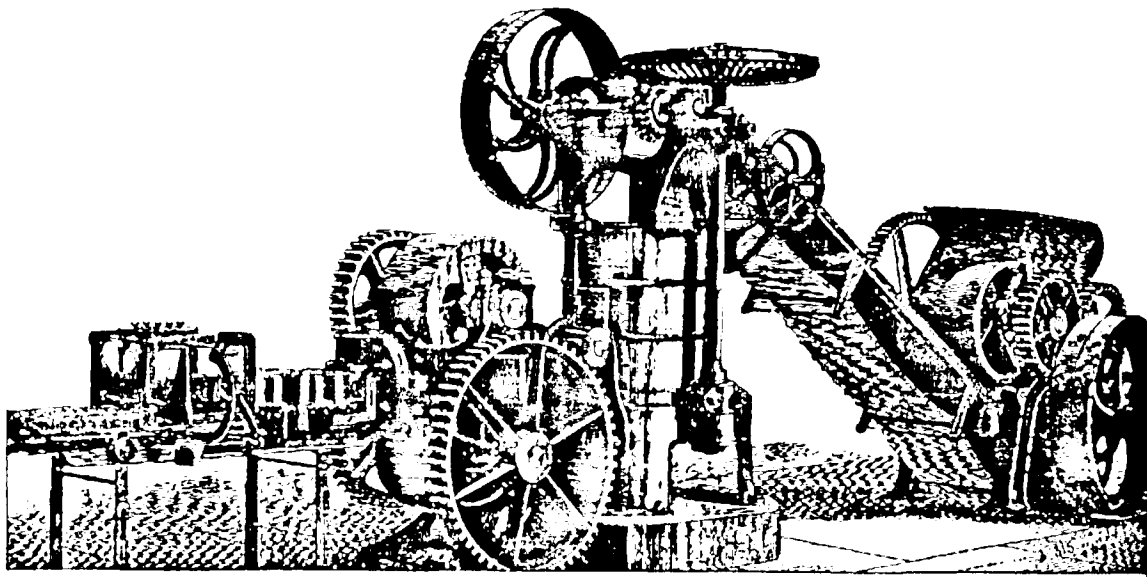
This "iconopod" was drawn in pencil by Ralph Griswold, then scanned and autotraced in Adobe Illustrator 88:



The graphic below was produced by converting the Adobe Illustrator graphic of Charles Richmond's work that appeared in the previous *Newsletter* to a PostScript font using Key Master. Here is text in this font:



The end of the order form in *Newsletter 29* carried this graphic, presumably symbolic of the way orders are handled at the Icon Project:



Also from *Machinery and Mechanical Devices*, this graphic is part of a composite identified as "Webb's Wheel Finishing Machine".

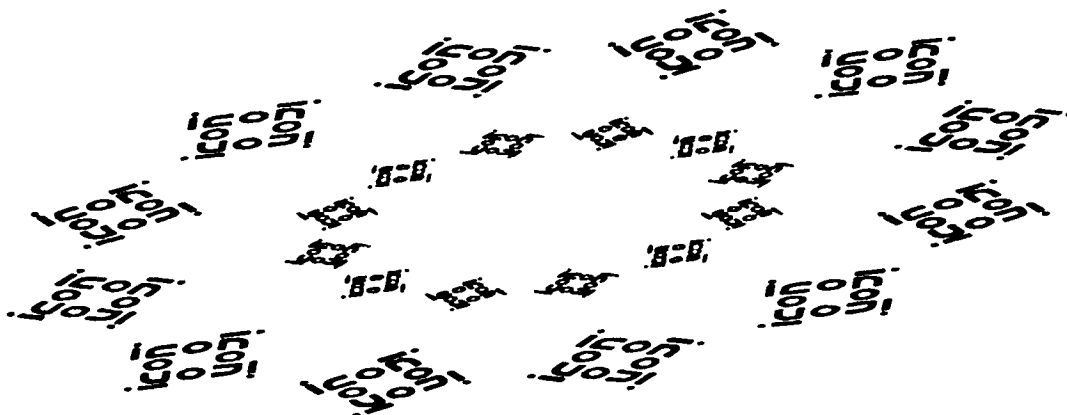
Two new graphics were published in *Newsletter 30*, including more characters from a font derived from Charles Richmond's work:



The second new graphic, also by Ralph Griswold, was produced by importing a portion of *Icon Fractal Space* into Graphist II, where it was "spherized", given a gray-scale palette, and imported to ImageStudio for final editing:



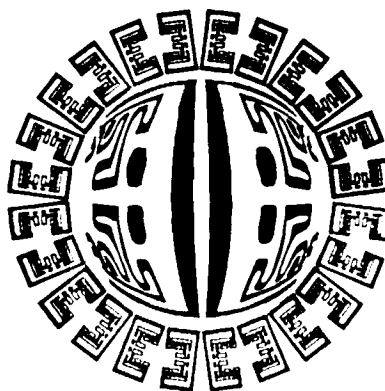
The graphic *Logo Motion* appeared in *Newsletter 31*. It was derived from the official Icon logo by Ralph Griswold using Illustrator 88:



Another graphic with characters from a font derived from Charles Richmond's work appeared in *Newsletter 33*:

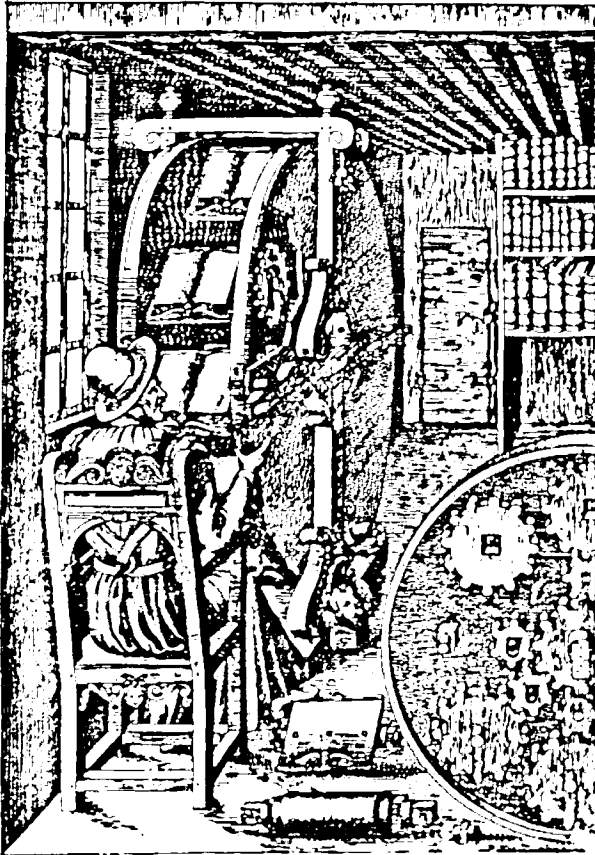


Also in *Newsletter 33* was this graphic. It is based on a Charles Richmond ideogram, scanned and "spherized" using Graphist II, autotraced in Illustrator 88. A circle effect was created using Smart Art I with a Keymaster font:





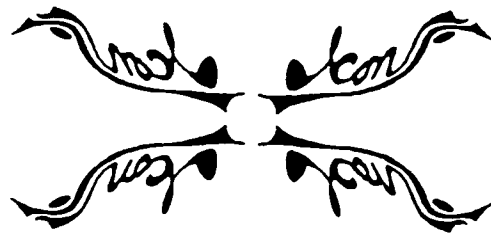
This illustration appeared in *Newsletter 33*. It is a scanned image of a reading machine from *The Various and Ingenious Machines of Agostino Ramelli*, Dover Publications, Inc. and Scolar Press, 1976:



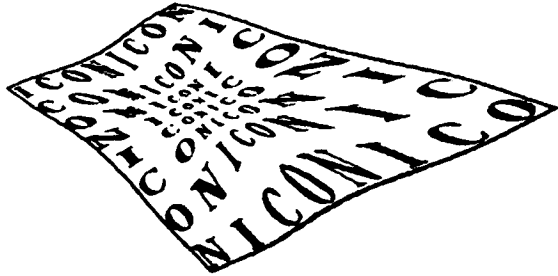
This graphic appeared in *Newsletter 34*. It was scanned from a pen-and-ink sketch by Ralph Griswold and distorted in perspective using Adobe Photoshop.



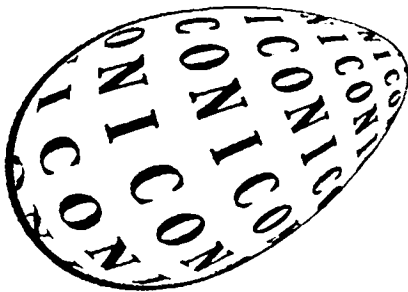
This graphic, which appeared in *Newsletter 35*, was made from a pen-and-ink sketch by Ralph Griswold. It was scanned and then duplicated and reflected in Adobe Photoshop.



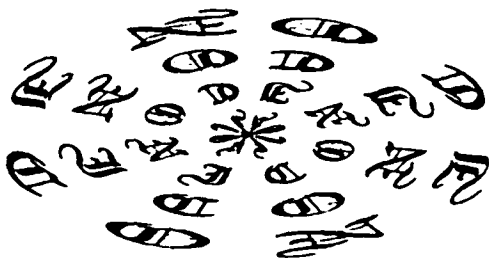
This graphic appeared in *Newsletter 36*. It was produced by Ralph Griswold, first creating a text lattice of the letters I, C, O, and N in Adobe Illustrator 3, using the Adobe font Stone Sans. The lattice was then imported into Adobe Photoshop, where it was manipulated by various filters and effects.



This graphic also appeared in *Newsletter 36*. It was done by a variation of the techniques used to produce the one above.



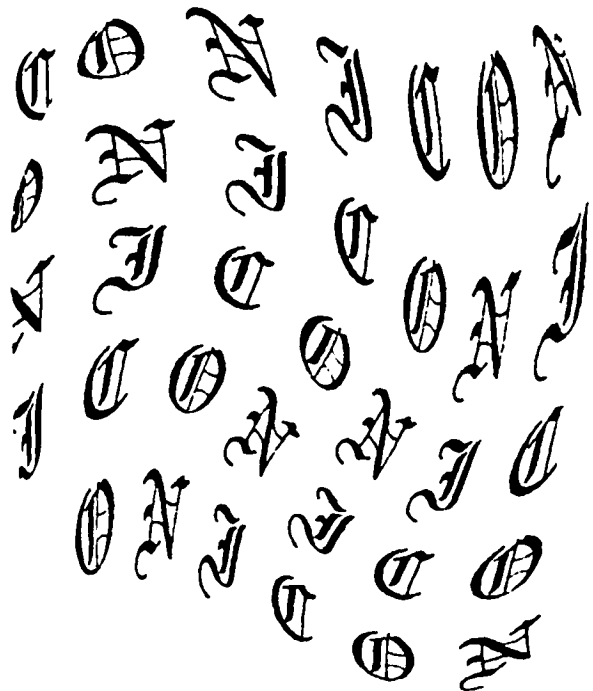
This graphic appeared in *Newsletter 37*. The techniques used were similar to the previous two graphics, but using the Adobe Linotext font and a polar transformation performed in Adobe Photoshop 2.0.



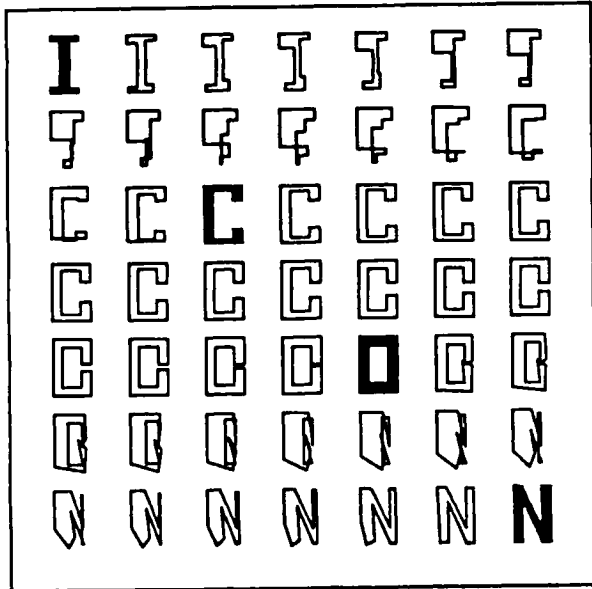
Here's another from *Newsletter 37*, also done using a polar transformation performed in Adobe Photoshop 2.0.



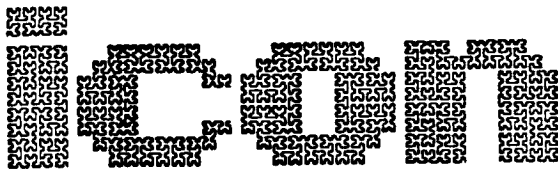
This graphic also appeared in *Newsletter 37*. The techniques used were similar to those from *Newsletter 36*, but with the Adobe Linotext font.



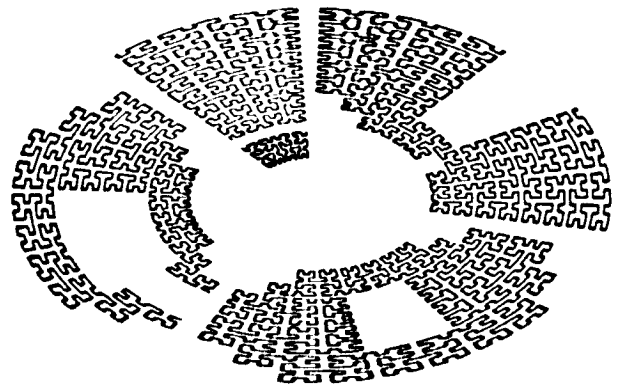
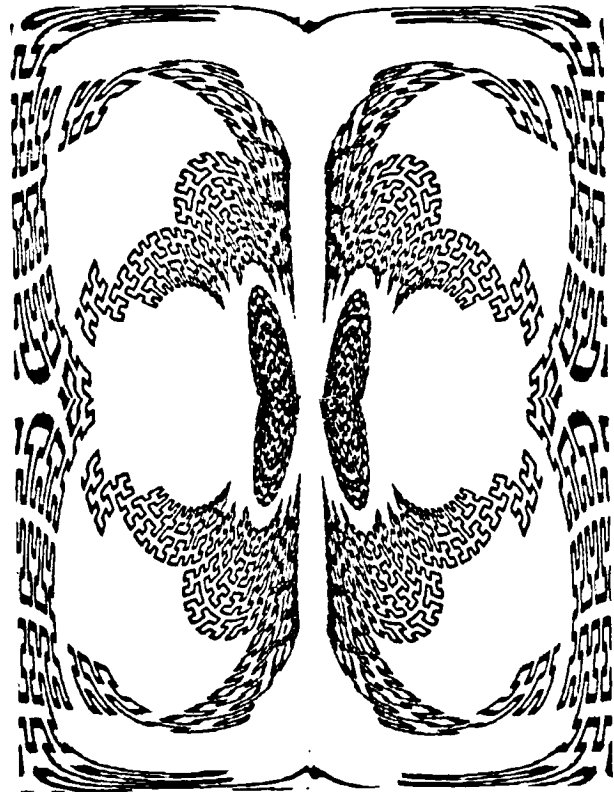
This graphic from *Newsletter 37* was derived from a display produced by Steve Wampler's "tweening" program, written in X-Icon. A screen dump was used as a template in Adobe Illustrator 3.0 to provide a PostScript drawing.



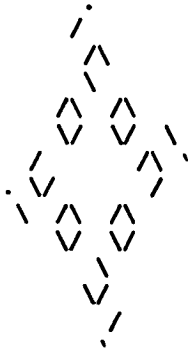
Lyle Rains provided this graphic for *Newsletter 38*. He commented "Since you are using graphics to fill odd spaces, what better than "space-filling curves to do the job?"



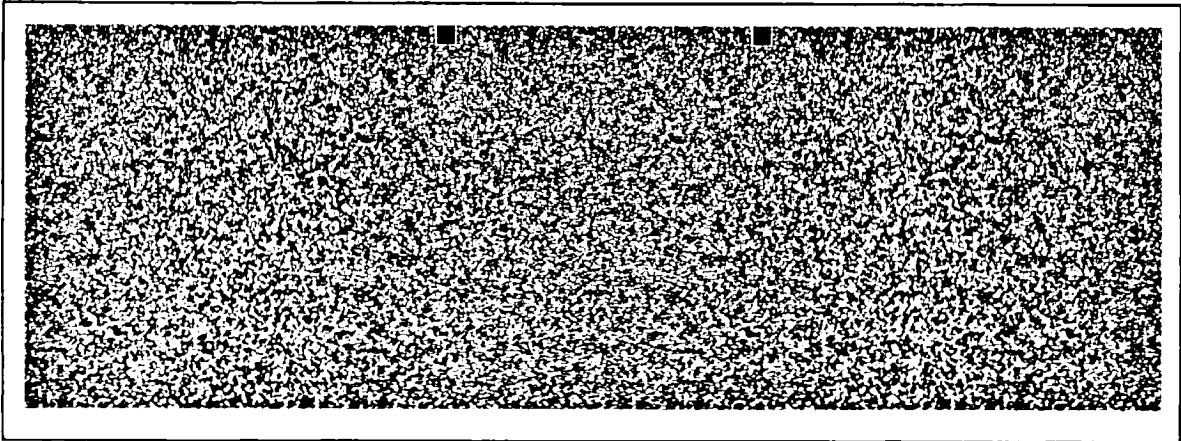
We used Adobe Photoshop to apply coordinate transformations to the graphic provided by Lyle Rains to produce the following graphics, which also appeared in *Newsletter 38*.



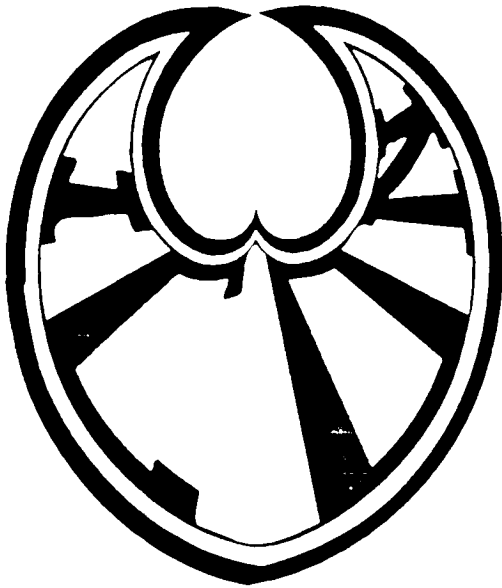
This graphic by Gregg Townsend also appeared in *Newsletter 38*. It's a solution to a puzzle; see *Newsletter 37*.



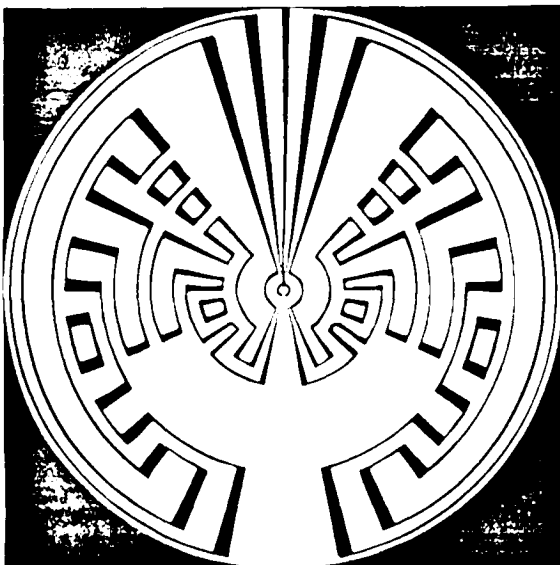
This "auto-stereogram" by Lyle Rains appeared in *Newsletter 39*. Viewed properly, it shows the letters I C O N in 3-d relief.



This graphic by Ralph Griswold appeared in *Newsletter 42*. It is based on a graphic from *Newsletter 26*, manipulated in Adobe Photoshop and converted to PostScript using Adobe Streamline.



This graphic by Ralph Griswold also appeared in *Newsletter 42*. It is based on a graphic from *Newsletter 28*, manipulated in Adobe Photoshop and converted to PostScript using Adobe Streamline.



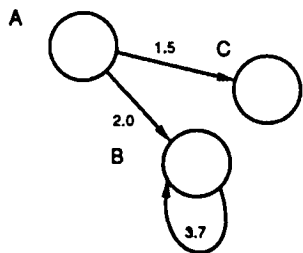
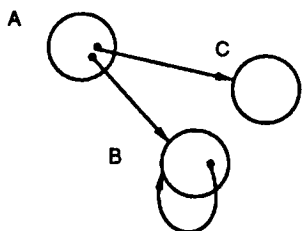
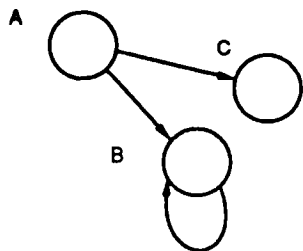
## Technical Illustrations

The map below appeared in *Newsletter 29*. It shows, in a rough fashion, the distribution of subscribers to the *Newsletter* in the continental United States. The plot is based on ZIP codes. Black dots are individuals, while boxes with crosses identify multiple subscribers in the same ZIP-code area.

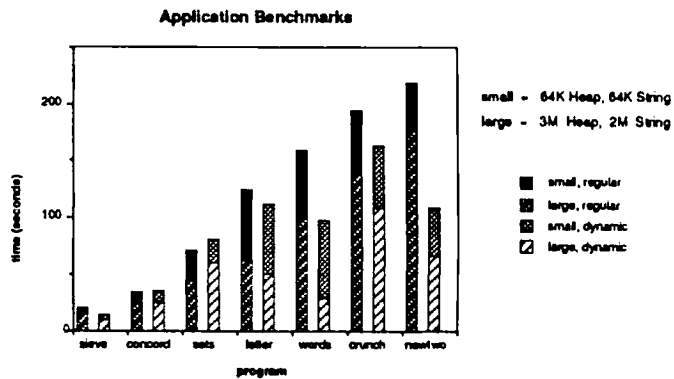
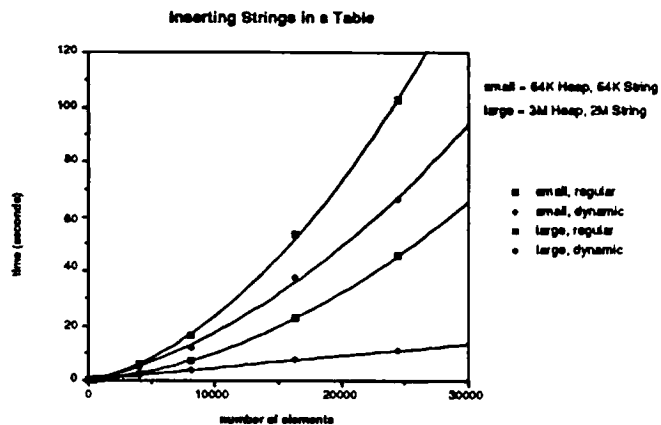
The data was prepared by converting our subscription list (using Icon, of course) to the format required by GeoQuery, which produced a screen image. The image was captured using Mainstay's Capture:



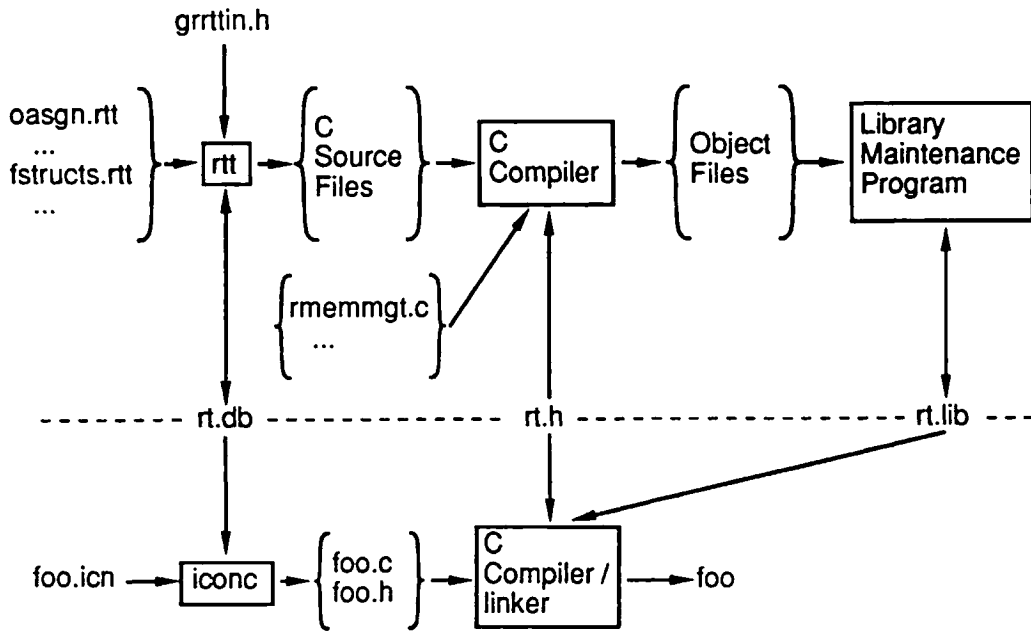
These diagrams, from a discussion of using sets to represent directed graphs in Icon, appeared in *Newsletter 30*. They were done by Ralph Griswold, using Cricket Draw:



These graphs, showing the performance of Icon's hashing for sets and tables, appeared in *Newsletter 31*. They were done by Bill Griswold, using Cricket Graph and MacDraw II:



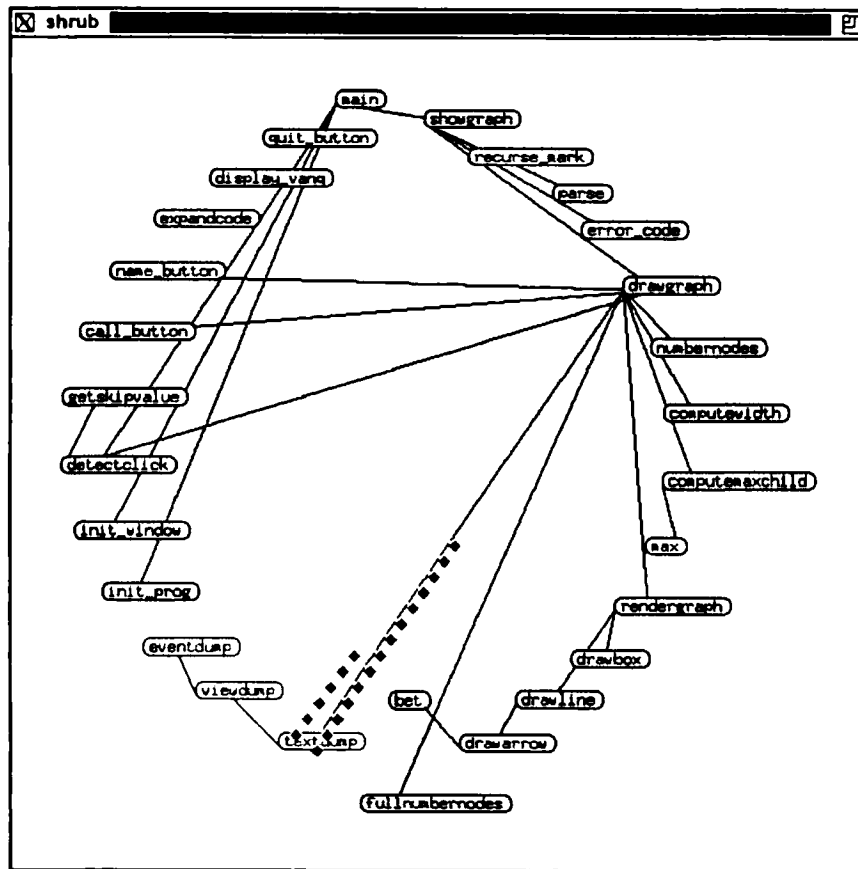
This diagram, showing the schematic layout of the Icon compiler, appeared in *Newsletter 33*. It was done by Kenneth Walker, using Cricket Draw:





This snapshot of a program visualization tool appeared in *Newsletter 36*. It started as a screen dump from X Windows on a Sun 4. It was touched up in Photoshop.

The image actually is in color.

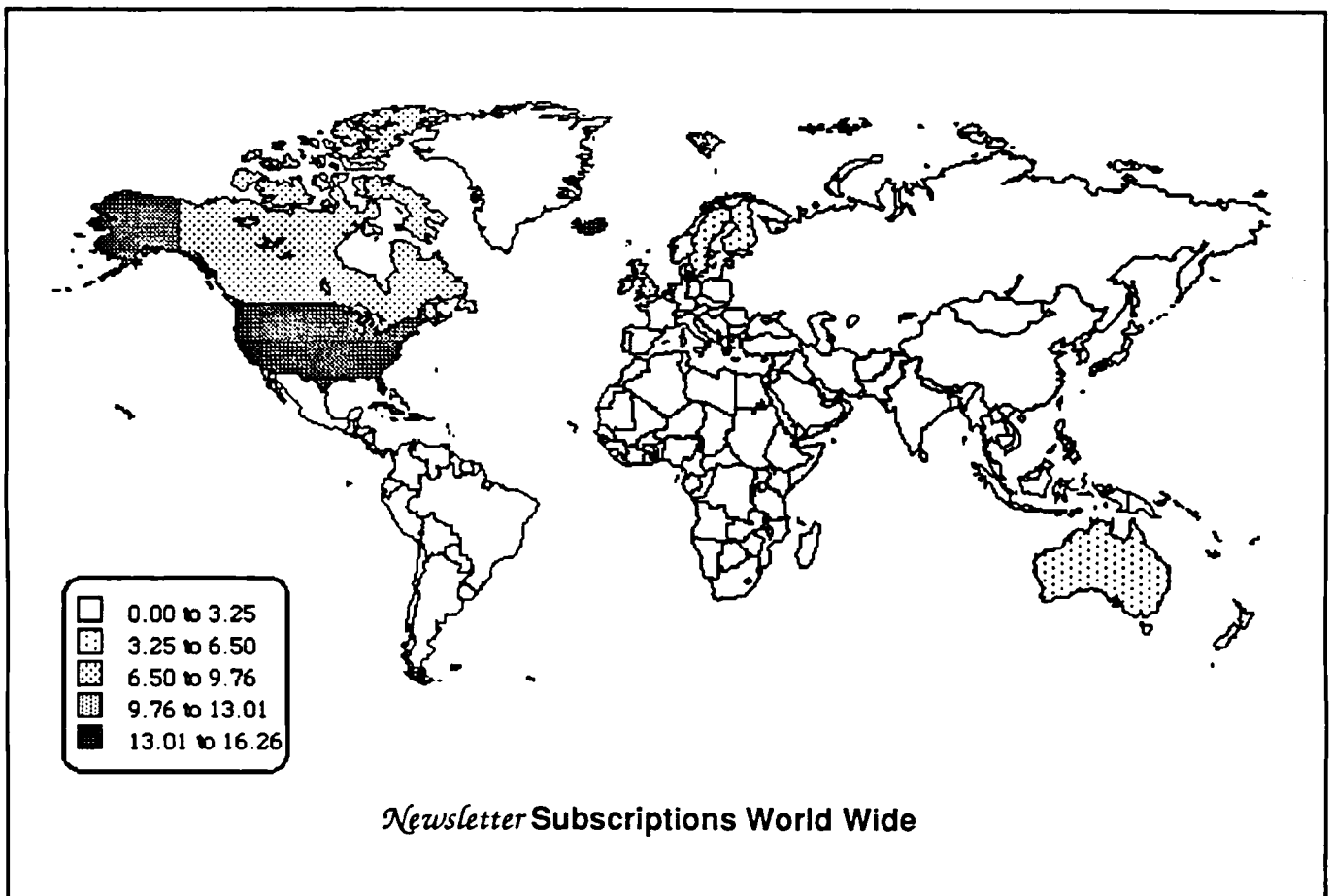
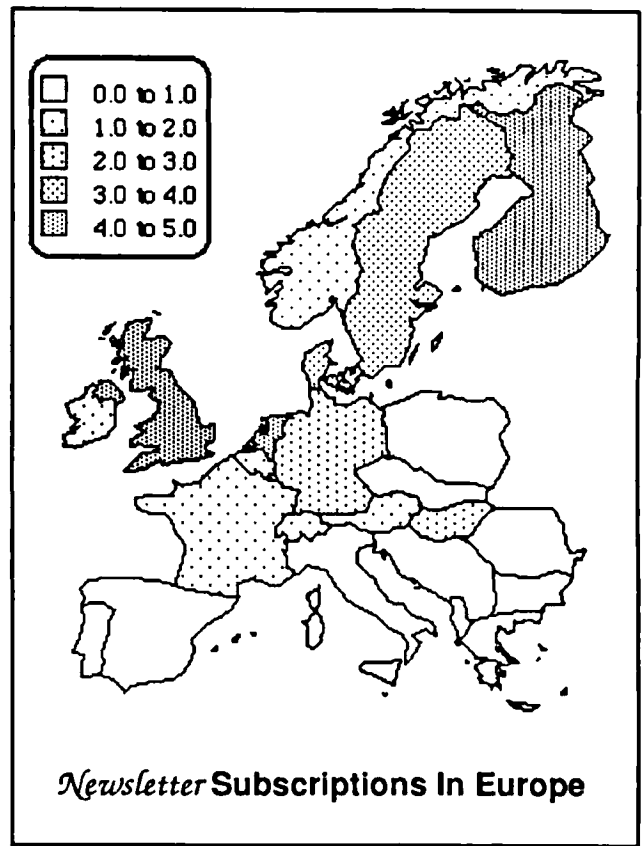


The map below appeared in *Newsletter37*. It was done in a fashion similar to the earlier one for *Newsletter 29*, except the image was exported via the clip board.

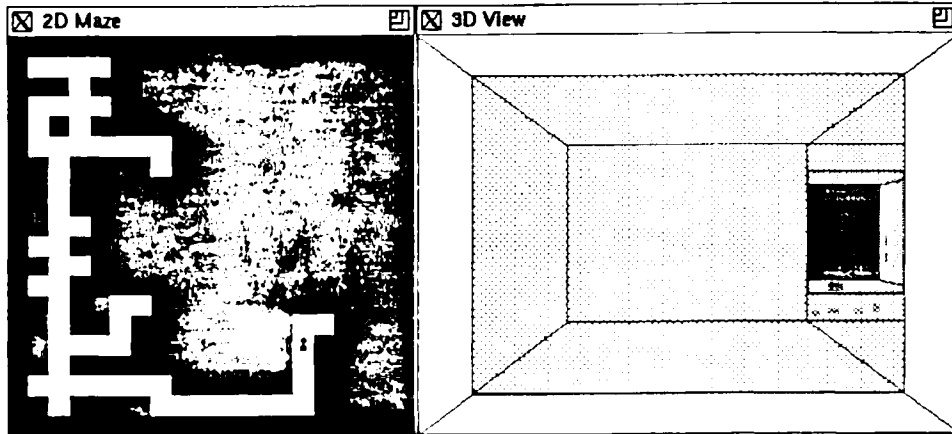


*Newsletter* Subscriptions in the United States

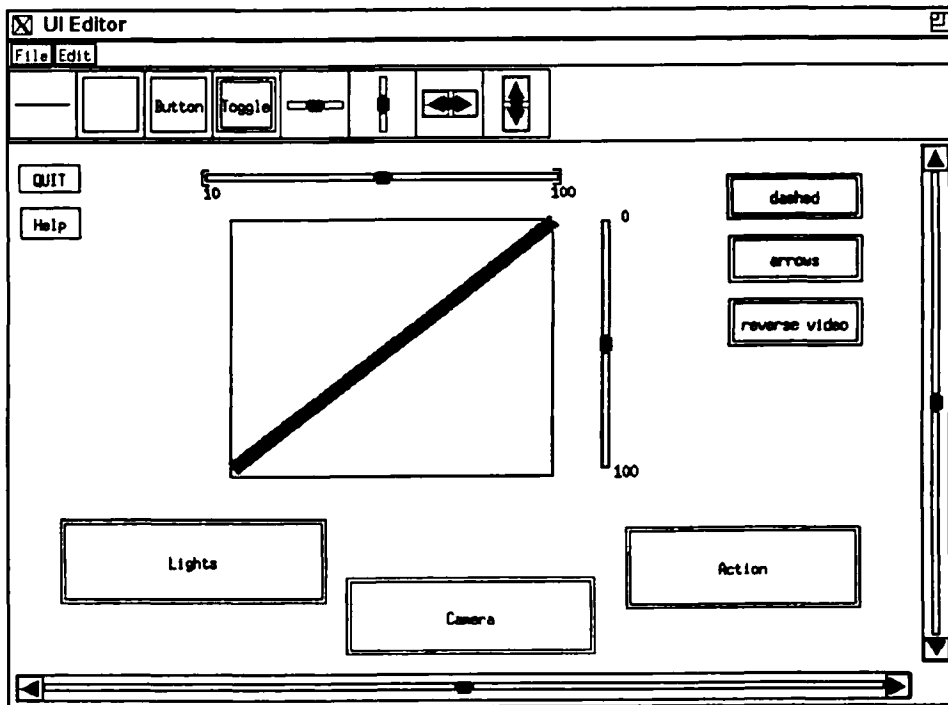
These maps also appeared in *Newsletter37*. They were done using MapMaker and touched up in Adobe Photoshop 2.0.



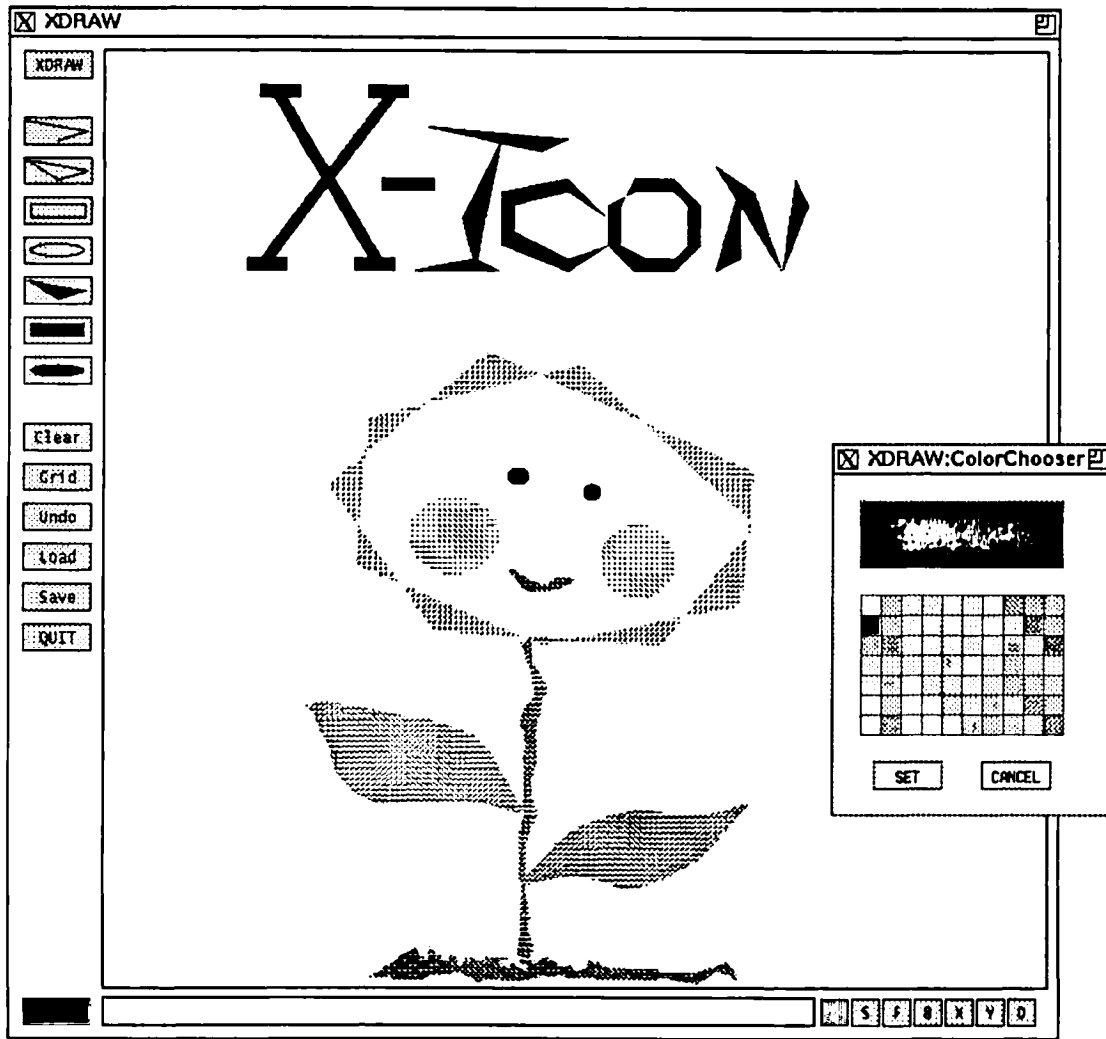
Three graphics from X-Icon applications produced by students as class projects appeared in *Newsletter 39*. The maze game was written by Darren Merrill. Mary Cameron wrote the X-Icon interface builder, and Qiang Zhao wrote the object-oriented drawing program.



Three-Dimensional Maze Game



X-Icon Interface Builder



Object-Oriented Drawing Program



Go on

Click here to go on

d:table\_1(4)

Order is arbitrary for table

(1)	list_60(20)	set_2(20)
(2)	2	list_66(2)
(3)	string(108)	string(108)
(4)	"short"	"short"

Goto Quit Exit

set\_2(20)

Order is arbitrary for set

(6)	7
(7)	20
(8)	list_62(4)
(9)	4
(10)	12
(11)	1
(12)	set_1(2)
(13)	17
(14)	6
(15)	14

Goto Quit Exit

string(108)

First 34

see the execution of the procedure to show strin

Goto Exit

list\_66(2)

(1)	"d(2)"
(2)	"I am here"

Goto Quit Exit

Data Examination Tool

Icon Adventure

? look at parrot  
? ■

DROP LOOK INVEN INVENTORY QUIT  
GET LOOK AT LOOK RM HELP

The parrot is a nice pretty green color. It stares back at you.

Adventure Game

## Photographs

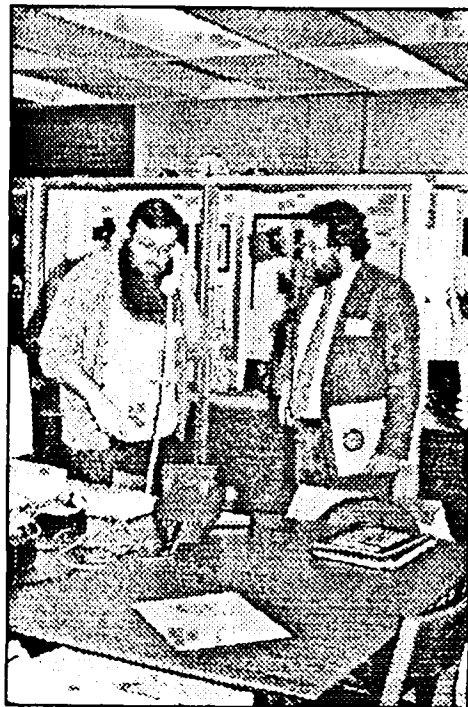
Starting with *Newsletter 34*, we experimented with including photographs, not very successfully.

Our first attempt was this photograph from the Second Icon Workshop.

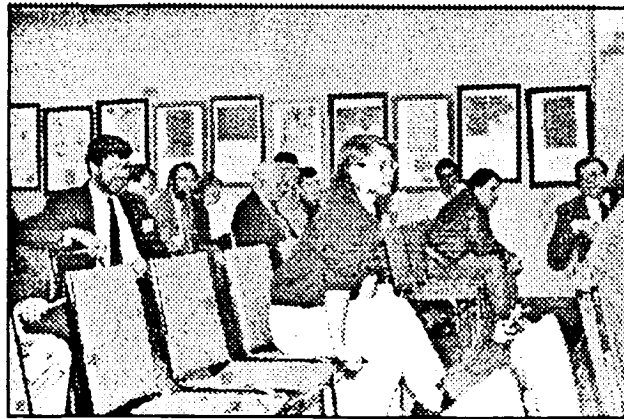


The photograph was taken by Bill Griswold. A glossy print was scanned on a Apple flat-bed scanner. The image that appeared in the *Newsletter* was screened at 85 lpi and printed at 1270 dpi on an L-300 imagesetter. The image above is screened at 60 lpi.

The next photographs, from the ICEBOLS conference, appeared in *Newsletter 36*. The photography was done by a Dakota State University staff member. Film negatives were scanned at 1:6 resolution (745 dpi) on a Nikon LS-3500 35mm film scanner. The images that appeared in the *Newsletter* were screened at 120 lpi and printed at 2540 dpi on an L-300 image setter. The images below and on the next page were screened at 60 lpi.



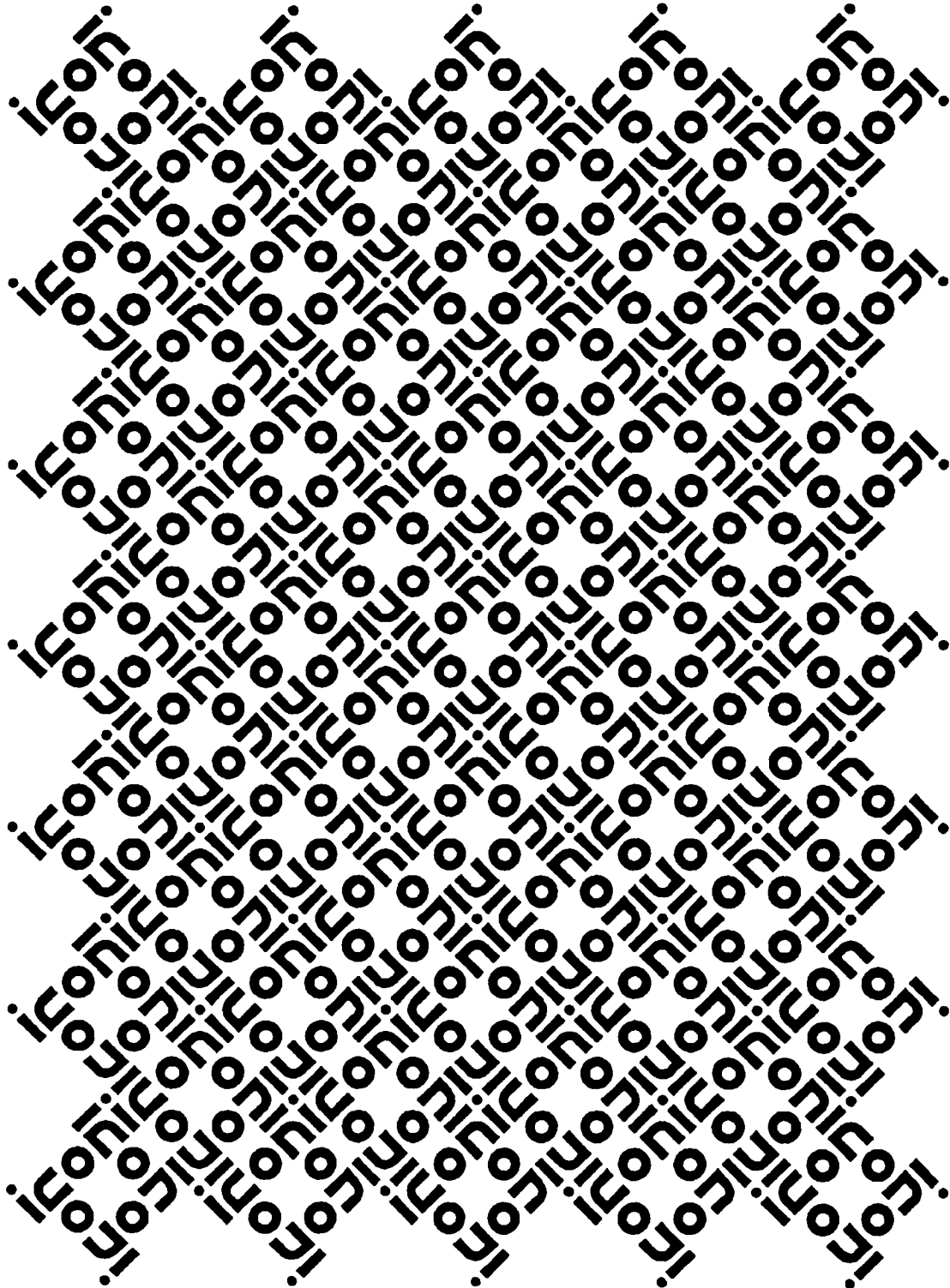




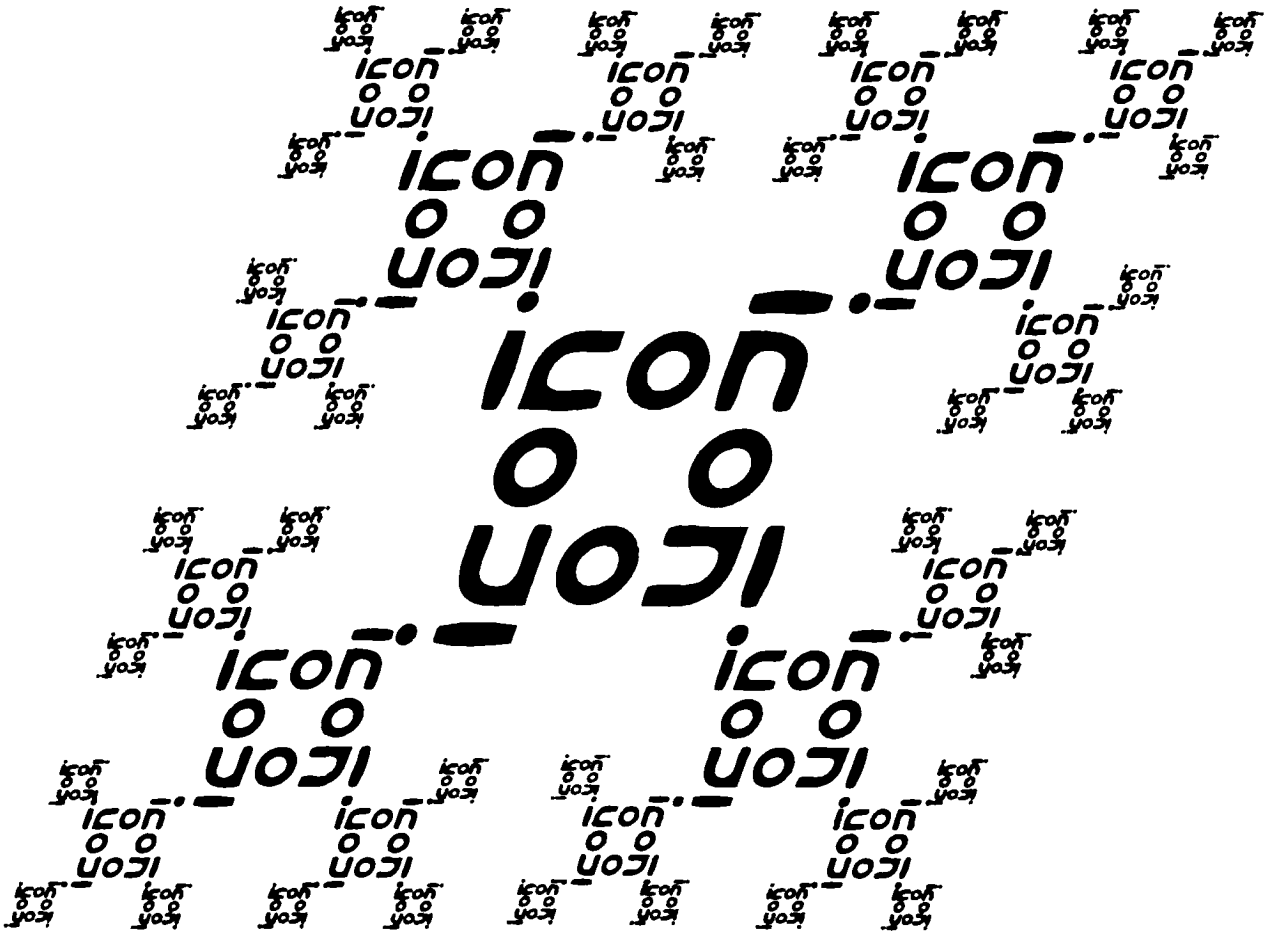
## Back Covers

Starting with *Newsletter 29*, graphics based on the Icon logo have been used on back covers.

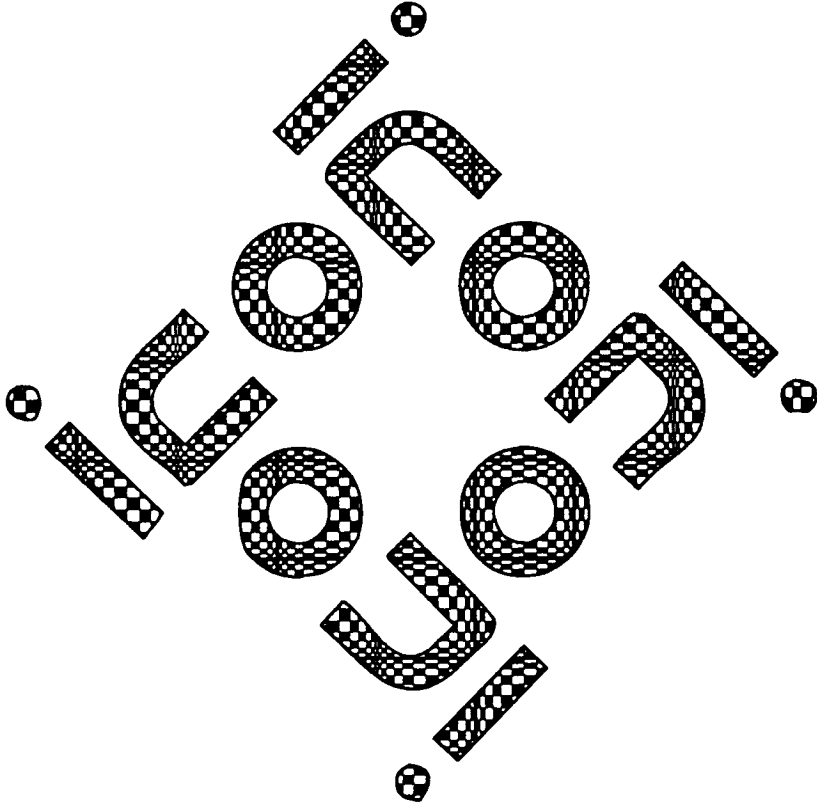
The first one, "Wallpaper 2", was done by Bob Alexander using MacDraw II:



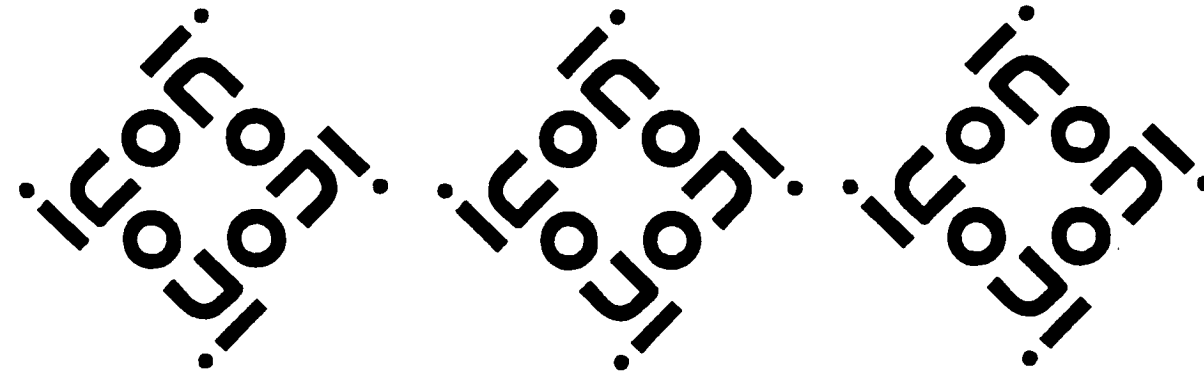
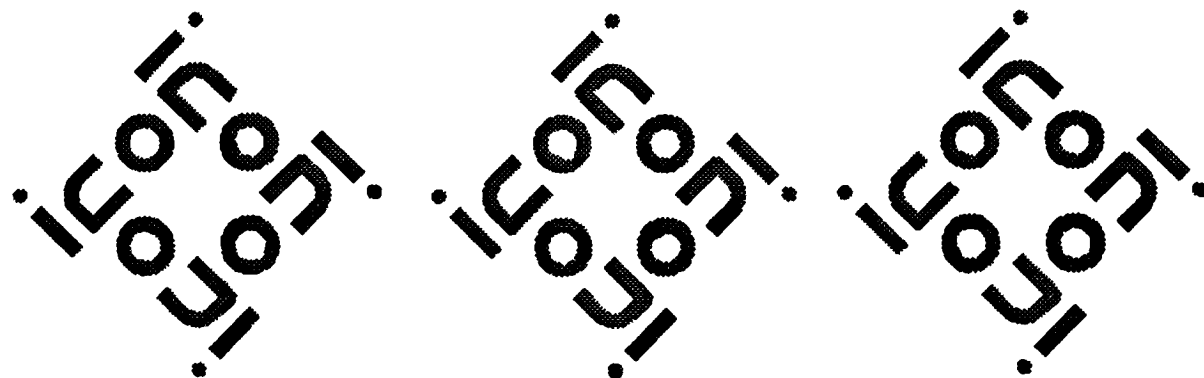
This one, from *Newsletter 30*, called "Icon Fractal Space", was done by Ralph Griswold using Illustrator 88.



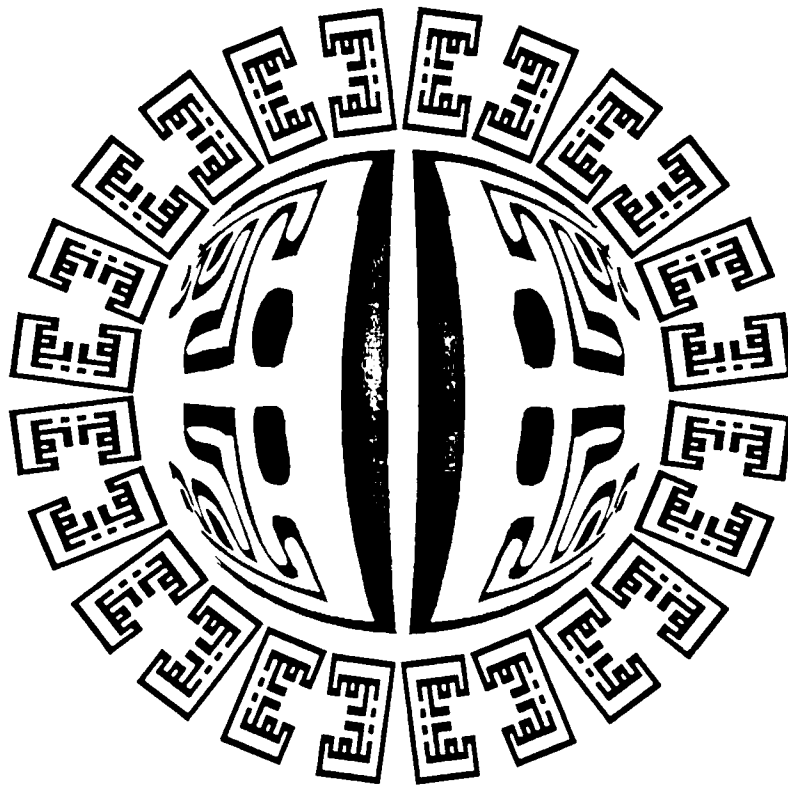
This one, from *Newsletter 32*, was derived from the official Icon logo by Ralph Griswold using Illustrator 88 with a pattern from Adobe Collector's Edition — Patterns and Textures.



This one, from *Newsletter 33*, was done by  
Ralph Griswold using Illustrator 88.



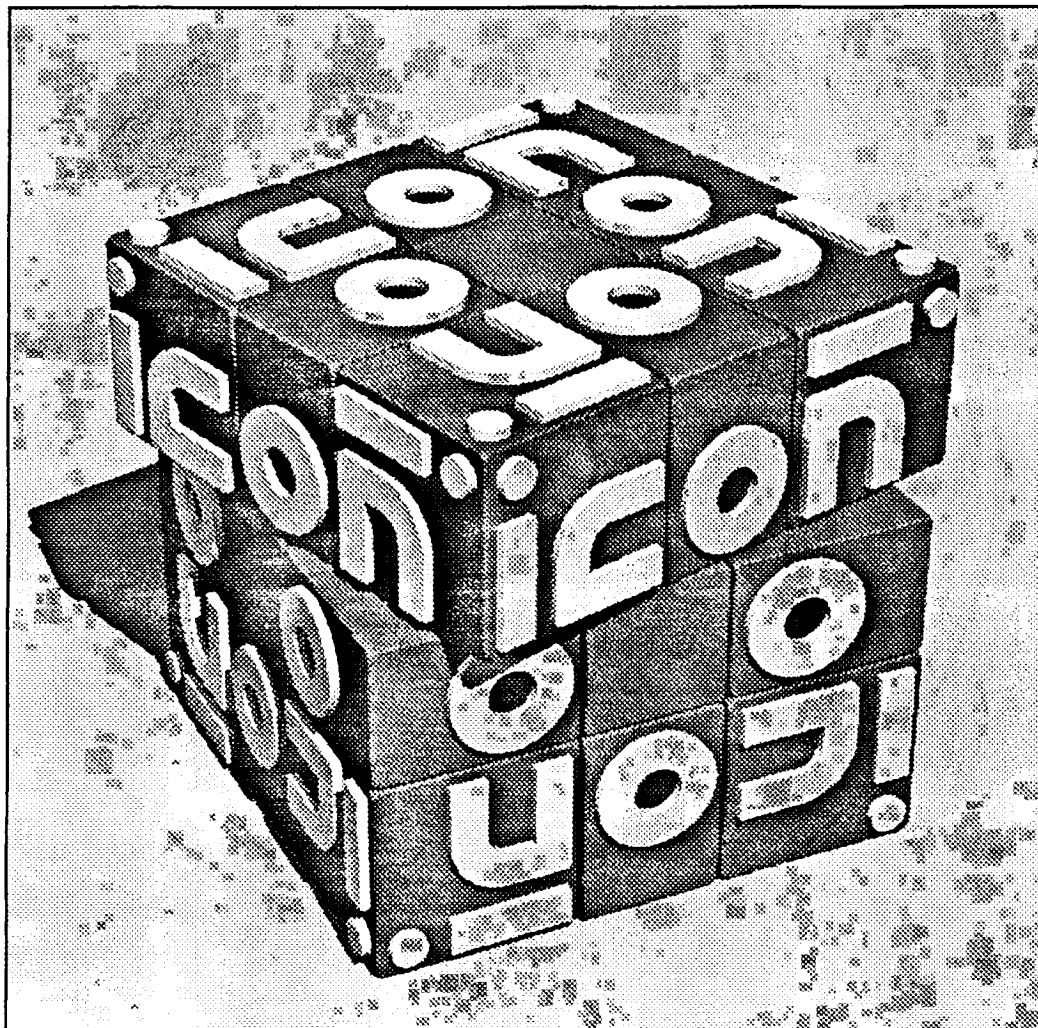
For the back cover of *Newsletter 36*, we used a graphic that first appeared in *Newsletter 33*. The different appearance of the border is the result of an accident in reconstructing the earlier Key Master font.



This graphic for the back cover of *Newsletter 37* was based on the Icon logo, manipulated in Photoshop 2.0.

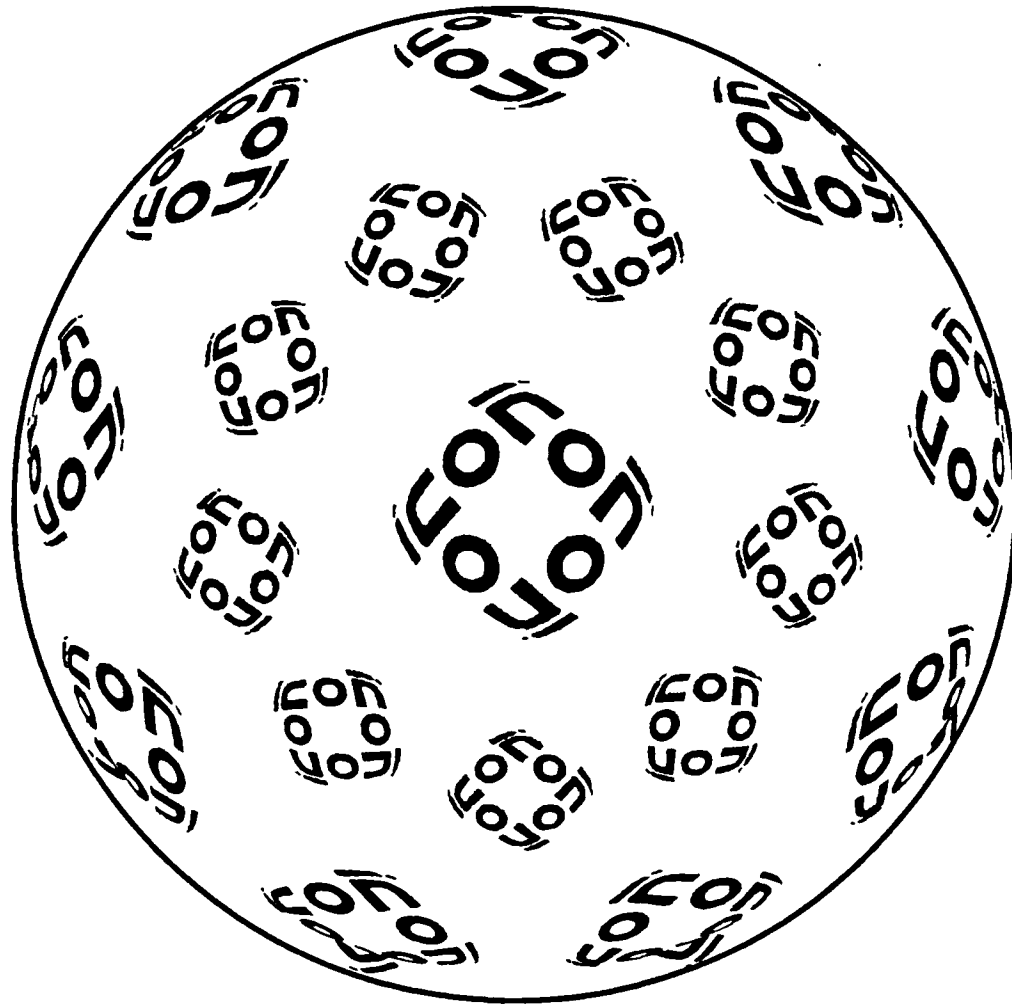


Lyle Rains provided this graphic for the back cover of *Newsletter 39*. It was done using DKBTrace.

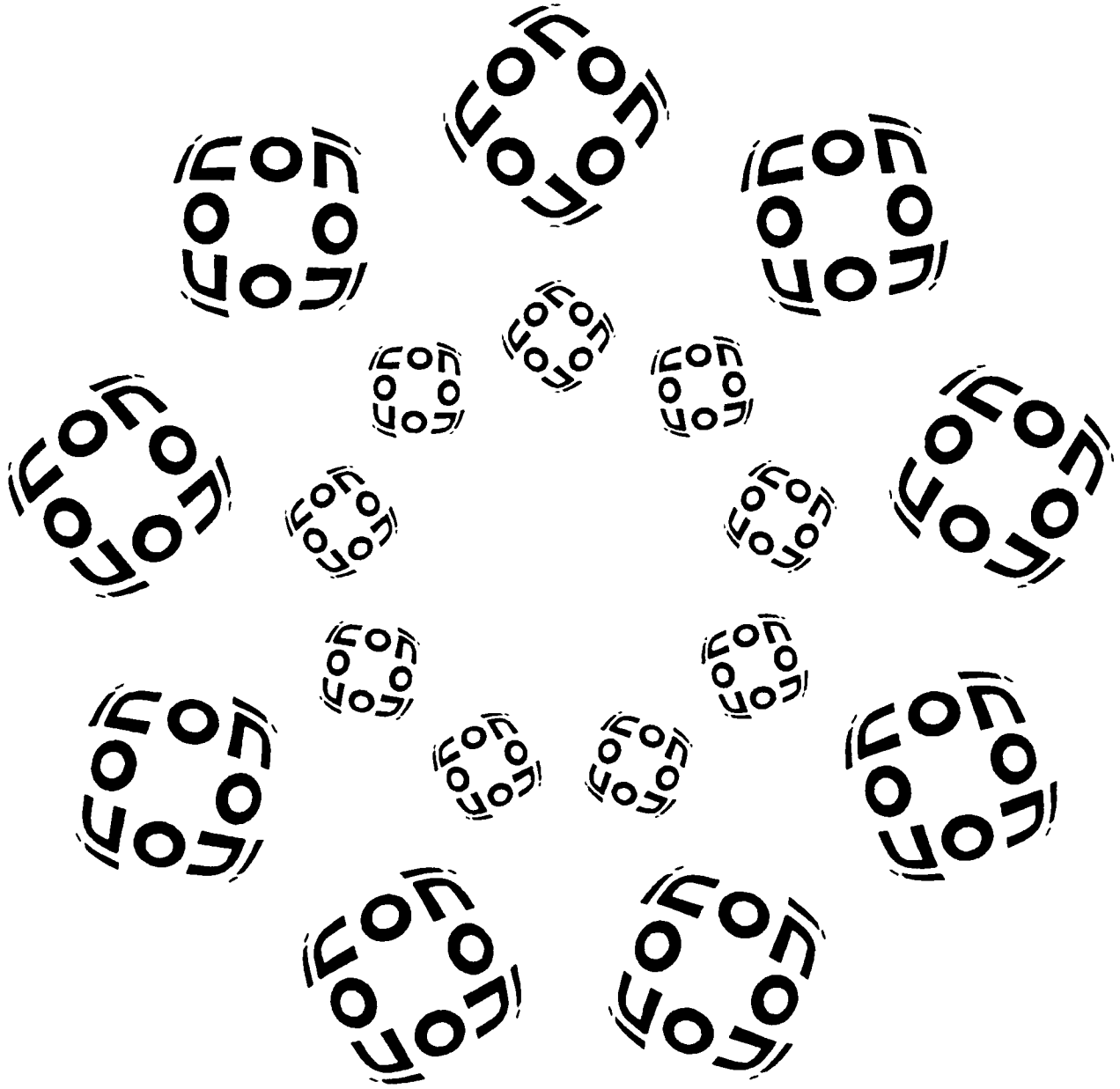




This graphic for the back cover of *Newsletter 40* was based on the Icon logo, manipulated in Photoshop 2.0.



This graphic for the back cover of *Newsletter 41* was based on the Icon logo, manipulated in Photoshop 2.0.



This graphic for the back cover of *Newsletter 42* was based on the Icon logo, manipulated in Photoshop 2.0.



## Logos

We include a logo identifying The University of Arizona in an information box in the *Newsletter*.

The University of Arizona has a lot of logos — dozens. Many are related to sports. We've chosen more sedate and academically-oriented logos for the *Newsletter*.

Our preference is the following logo depicting "Old Main", the oldest building on campus. It is a 300-dpi bit map, produced by scanning first-generation art work:



Unfortunately, some of the lines in the Old-Main logo are too fine to print clearly at 300 dpi. In recent *Newsletters* we've used another logo that prints better:



This also is a bit map, obtained by scanning. One of the problems with bit maps is that they take a long time to print. We recently converted the bit-mapped graphic above to PostScript, using Adobe Streamline. The result, shown below, prints much more quickly. You decide if the loss of quality is significant:



Recently The University of Arizona commissioned a new logo. It's been controversial (some call it the "Schzoid A"). We're not fond of the new logo, but the University has mandated its use and now prohibits the use of its many other logos except for special purposes. We're left with this alternative, which was scanned and traced with Streamline:

THE UNIVERSITY OF  
**ARIZONA**  
TUCSON ARIZONA

Start with *Newsletter 34*, The Bright Forest Company has officially collaborated with the Icon Project in the production of the *Newsletter* and other publications. The BFC logo appears below The University of Arizona logo in the information box in the *Newsletter*.



**The Bright Forest Company**  
**Tucson Arizona**

The graphic at the left of the logo is from a "begging bear" rubber stamp created by Ralph Griswold as an identification in place of signature.

## The Tools We Use

Over the life of the *Newsletter*, we've used many computational tools in its production. Here's what we now use most often.

### *Hardware:*

Macintosh IIx  
Apple flat-bed scanner  
Nikon LS-3500 35mm film scanner

### *Software:*

Aldus PageMaker 4.0  
Adobe Illustrator 3.0  
Adobe Photoshop 2.0  
Altsys Art Importer  
Adobe Streamline 2.0

## Colophon

This document was  
prepared using Aldus PageMaker 4.0

The body face is Palatino,  
with Zapf Chancery for *The Newsletter*

The outrageous illuminated initial  
on the first page was scanned from an 1889 face in  
*Decorative Alphabets and Initials*,  
Alexander Nesbitt, editor,  
Dover Publications, Inc. 1988.

This document was printed on a  
LaserWriter II NTX