amount of information comparable to the most elementary type of school atlases, leading us to the assessment that their best use is probably at the secondary school level.

How different are these electronic atlases than their printed counterparts? Given their current costs and limited number of maps and specific hardware requirements, they are not competitive with printed atlases. And turning pages is not much different than clicking through menus. Electronic atlas creators have not yet taken full advantage of the medium they are working in, but rather have attempted to make the electronic atlas a software clone of the printed atlas. In this respect, PC-GLOBE+, with its broad data base and choices of what to display where has the potential to move in that direction, however, both programs have a long way to go.

A CALL FOR MAPPING SOFT-WARE REVIEW EDITORS

CP is planning an annual compilation of mapping software review references for publication in the Winter issue. We are seeking individuals willing to compile references from a wide range of sources and to submit a list in digital form by December 1, 1989.

Several individuals might share the responsibility. One could concentrate on software reviews for IBM-PCs and compatibles, another on software for the Apple Macintosh, another on software for workstations, minicomputers, or mainframes. For more information please contact David DiBiase at (814) 863-4562; Bitnet: DWD1 at PSUVM.

PROTOTYPE TIGER FILES AVAILABLE

U.S. CENSUS BUREAU
The TIGER/LINE file for Boone County, Missouri is available from the U.S. Census Bureau on a single reel of tape (at either low or high density) for $175. The prototype product offers more than 4.6 Mb of information on roads, railroads, rivers, and other features, along with names and classification codes; State, county, census tract, block, and other area codes; feature shapes; address ranges and ZIP codes. Contact: Customer Services, Bureau of the Census, Washington, DC 20233; (301) 763–4100.

AAG MICROCOMPUTER SPECIALTY GROUP

The AAG/MSG is offering a demonstration program by James Taylor that displays the Boone County prototype TIGER file. The program is distributed on two high density diskettes at a cost of $5, including "the Boone County data which the Census sells for $60." Requires EGA graphics. Request diskette G16 from Robert Sechrist, Department of Geography, Indiana University of Pennsylvania, Indiana, PA 15705. Make checks payable to the AAG Microcomputer Specialty Group.

cart lab bulletin board

This forum is offered to encourage communication among practitioners at a time of rapid technological transition. Questions, comments, and announcements are invited.

THE BEST OF BOTH WORLDS: Linking the WORLD projections package with Macintosh drawing programs

Iden Rosenthal
Maximum Use Software

Desktop publishing (DTP) technologies have profoundly altered the balance of power between the technical pen and the microcomputer in the graphic arts, as well as in thematic mapmaking. The DTP market appeared in response to the introduction—in 1985—of Apple Computer's Laserwriter, Adobe System's PostScript page description language, and Aldus Corporation's PageMaker, the first personal page layout program. The second generation of Post-Script output devices (such as the Linotronic Imagesetter) coupled with advanced drawing programs like Adobe's Illustrator and Aldus' FreeHand make it possible to generate real typography, fine dot screens, and color separations direct to film. The prospect of creating high-quality thematic maps without sticking-up lettering, etching and peeling, and compositing negatives is enticing to many thematic map producers.

PostScript's unprecedented power to describe pages that has made it a *de facto* industry standard. PostScript became accessible to a large, previously untapped market through the intuitive graphic interface of Apple's Macintosh microcomputer. Market forces have led IBM and the clone-makers to find a way for their machines to work more like the Mac, at least for graphics purposes. Although the Mac was designed with graphics central to its method of user interaction, and thus has an inherent advantage, there are twice as many MS-DOS systems being used for DTP. For what it's worth, my opinion on the issue of Macintosh vs. MS-DOS is this: if you've got them, it's best to mix both machines in the same workplace, passing files back and forth via cable or networking. With the Macintosh you run into fewer frustrating configuration and compatibility hang-ups and (at least to date) the drawing programs are faster, easier to learn and use, more powerful, and better tailored to production concerns. On the other hand, many people are already set up to table digitize base maps on a PC running

AutoCAD or some other CAD program. Furthermore, many programs that are important for cartographers have yet to be ported from MS-DOS to the Apple operating system. Perhaps the best example is the WORLD map projections package.

WORLD is widely regarded as the best at what it does, and there is no equivalent in the Macintosh environment. Fortunately, the option of saving output to disk as a PostScript file has recently been added. Unfortunately, the PostScript files generated by WORLD are incompatible with Illustrator and FreeHand. PostScript may be something of a standard, but it is a very broad one. The litany of PostScript subformats (Illustrator PostScript vs. FreeHand PostScript vs. Encapsulated PostScript) goes on at length. What follows is an outline of a procedure that converts the PostScript that WORLD generates into a form that Illustrator and FreeHand can manipulate (FreeHand can import Illustrator files, though Illustrator does not return the favor).

What you need to understand for this operation is that an Illustrator file is comprised of three sections: a prolog, a body, and a trailer. The prolog and trailer sections are virtually identical for every file so you can just copy them from a dummy file and combine them with whatever x,y coordinates you like in the body section. For simple line strings the format is:

```
x1 y1  m
x2 y2  l
x3 y3  l
. . .
xn yn  l
S
```

A polygon has the same form except that x1 y1 = xn yn.

PostScript is written in standard ASCII text so any word processor

can be used to edit it. In fact, I use a WordPerfect macro to accomplish the conversion. If one wanted to make routine use of this procedure, however, I'd recommend writing a Turbo Pascal utility for the speed of it. The conversion consists of the following search and replace sequences:

1) Replace everything (in the WLDOUT file WORLD creates) up to and including the first line ending with "moveto" with the prolog from any other functional Illustrator file. The prolog starts at the beginning of the file and ends with the line "%%EndSetup:".

2) Change all occurrences of "moveto" in the file to "m". IMPORTANT: Make sure after this that no two consecutive lines end with an "m." If they do, get rid of all but one of them. This happens when WORLD is asked to generalize or to break a polygon off on the edge of the page. If your text editor can't handle this double-'m' search procedure you may have to resort to some minimal programming.

3) Change all occurrences of "lineto" in the file to "l"

4) Change all occurrences of "stroke" to "S"

5) Replace the last two lines in the WLDOUT file with the trailer from a functional Illustrator 1.1 file. The trailer starts with the line "%%Trailer:" and runs to the end of the file.

Congratulations, you are done! You can now open the file you have created using either Illustrator 88 or FreeHand and start adding data and design.

One thing to be aware of is that WORLD sometimes creates PostScript with lines like "47.324-235.763 lineto", i.e., no space between the x and y values. This

will choke Illustrator. There has to be a space between the 47.324 and the -235.763. Another problem may arise if the x,y coordinates in your converted WLDOUT file aren't close to the x,y coordinates from the Illustrator file you harvested your prolog from (as found in the line of the prolog that begins "%%BoundingBox:"). If the coordinate systems don't happen to nearly match, you won't see anything on the page when you open up the file after conversion. The map is still there, you just can't see it. Try this sequence of commands: Fit to View, Select All, Cut, Paste. The map should then be centered on your page.

Adobe Illustrator 88 desktop showing a converted WORLD Postscript file with paths selected

I continue to be intrigued by the creative problem-solving process that is required to push the limits of desktop mapping. The same practical issues are being tackled simultaneously in many different kinds of mapmaking environments. By offering this information to the cartographic community, I hope to turn a few more heads in the direction of desktop mapping and encourage others to share their thoughts and problem-solving efforts in this area. My company, Maximum Use Software, consults on desktop mapping and publishes a utility that creates graphs directly in Adobe Illustrator file format. I am always happy to talk Macintosh cartography and can be reached at (215) 878-9364.