Microcomputers and the Word Wars:
A Personal Adventure

1978-1986

The Club
2012

John V. Lombardi

How we get words out of our heads and into some form of print or display

Business

PAGE ORIENTED
Author dictates, secretary transcribes into pages of draft, author revises pages, secretary redrafts pages, author approves pages, secretary produces final pages
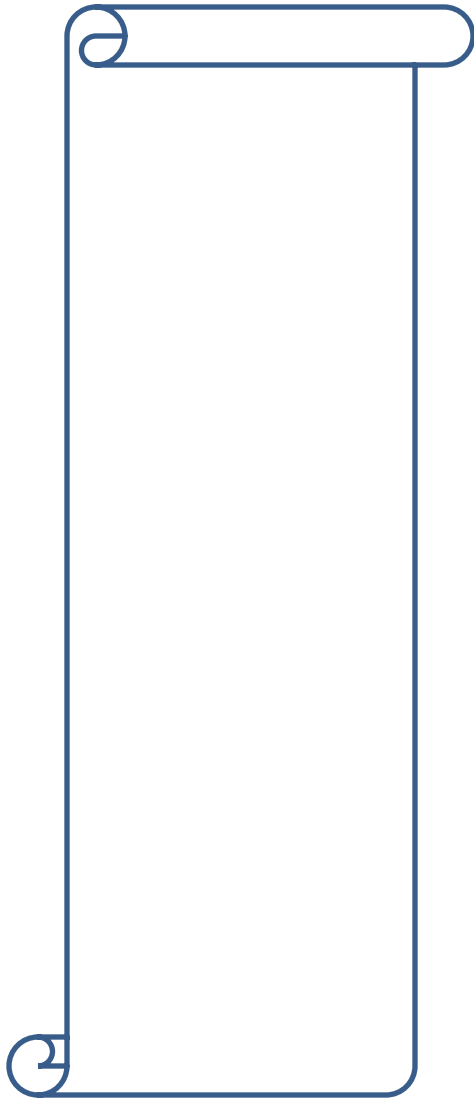
Academic Computing

TEXT and LINE ORIENTED
Programmer writes program lines, keypunched one line per card, run computer one line at time, error report produced for lines, Programmer corrects lines, Program lines executed sequentially and correctly

Academic Writing

TEXT and SENTENCE, PARAGRAPH, CHAPTER ORIENTED

Author writes sentences broken by paragraphs and chapters by hand/typewriter, Author revises draft, Author submits draft to Publisher, Publisher edits returns draft to author, author revises, publisher prints proof copy often not in page form, author corrects proof, publisher produces printed paginated copy

Text Oriented

Begin Text

EndText

Page Oriented
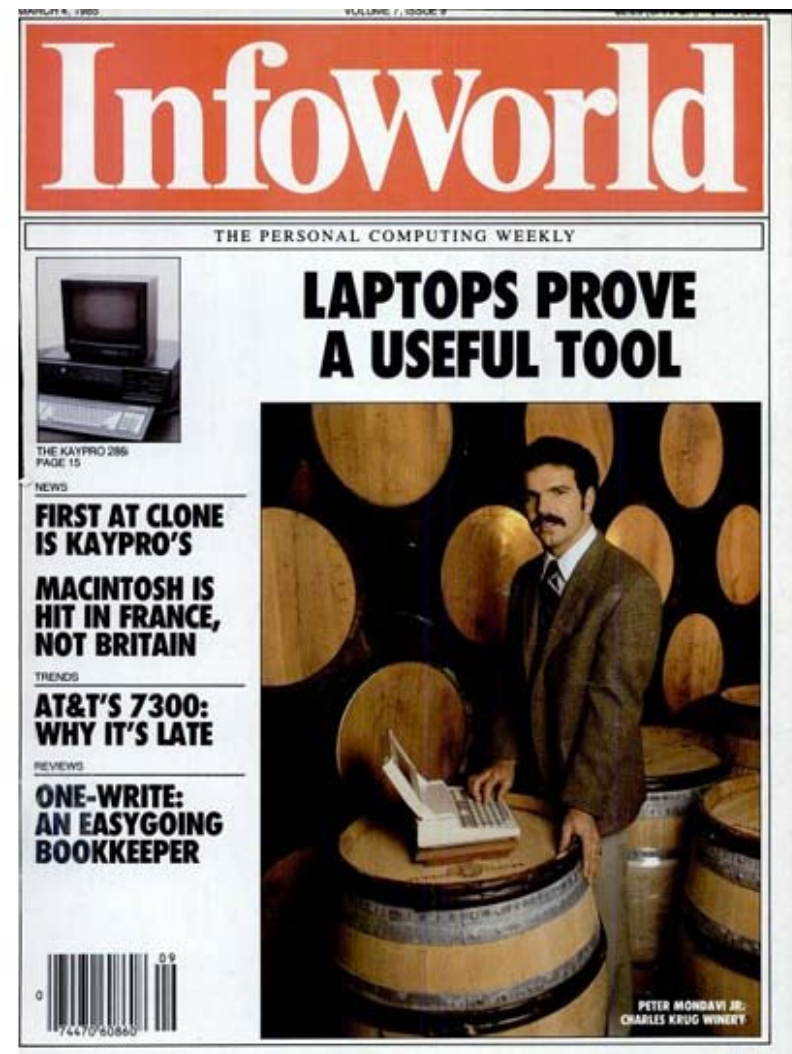
Page 1

Page 2

Page 3

Page 4

1977

1977

1979

1981

1983

BYTE — DECEMBER 1975 $1.50

the small systems journal

What is a Character?

Assembling an Altair

Logic Testers Galore

A New 6800 Kit

Using ROMs

COMPUTERS: THE ULTIMATE TOYS

1975-1998

InfoWorld

MARCH 4, 1985   VOLUME 7, ISSUE 9

THE PERSONAL COMPUTING WEEKLY

LAPTOPS PROVE A USEFUL TOOL

THE KAYPRO 286
PAGE 15

NEWS

FIRST AT CLONE IS KAYPRO'S

MACINTOSH IS HIT IN FRANCE, NOT BRITAIN

TRENDS

AT&T'S 7300: WHY IT'S LATE

REVIEWS

ONE-WRITE: AN EASYGOING BOOKKEEPER

PETER MONDAVI JR.
CHARLES KRUG WINERY

1978-

NEWSLETTER

DataDomain
Operated from
About 1977 to
about 1984

This issue of The Data Domain Newsletter celebrates the sixth anniversary of The Data Domain. The past six years have seen a revolution in the world of small computers, and The Data Domain has been a significant part of that revolution. Examples of the distance small computing has traveled in these years can be seen throughout this issue of the Newsletter. We have features on two of the newest entries: the Osborne 1, the first computer that comes complete with applications software at the price of a good stereo; and the NEC, one of the first of the Japanese competitors. We have features on software for the machine that made personal computers a national popular phenomenon, the Apple II. The Data Domain has been part of this microcomputer revolution from the earliest days of the do-it-yourself kits to today's sophisticated hardware and software that comes ready to solve all manner of problems from tax returns to wordprocessing to record keeping. This is just the beginning, so stay tuned.

John V. Lombardi, Editor

Ray Remembers

It is hard to believe that I've spent over six years of my life in this business. Especially when you consider that in the 32+ years since I graduated from high school, the longest I've been with any one employer was the five and a half years in the U.S. Army.

small computer support group

NEWSLETTER, No. 2.   February 1981

Editor: J.V. Lombardi, Bryan 205, IUB, 7-8669

INTRODUCTION

This second issue of the NEWSLETTER highlights word processing
applications for microcomputers. Among all the uses of
microcomputers, it is word processing that has generated the most
interest among those writing to the NEWSLETTER. In this issue we
feature an overview of word processing by Carolyn J. Mullins of
the IU Office of Information and Computer Services. In addition,
there is a user's report on the EasyWriter word processor for
the Apple II.

Many Apple II users have expressed interest in using CP/M based
software. Included in this issue is an article on the Softcard
which makes CP/M accessible to Apple II users.

We also have a follow-up article on the diskette difficulties of
the TRS-80 and the Apple II.

Finally there is a user's report on a file transfer package that
will move WCC files to the Apple II.

This issue begins, however, with a note from the Small Computer

$6.95

COMPUTER LITERACY
The Basic Concepts and Language
By John V. Lombardi

If you already know bits from bytes, RAM from ROM, and CPU from CP/M™, then you qualify as a computer literate. If not, or if you cannot explain these terms to someone else, then this short, clear introduction to the world of computer technology is the book for you.

Computer Literacy tells you what computer programming is and how it is accomplished. John V. Lombardi provides all the information adults need to understand general articles about microcomputers and their impact. The book will give you the confidence to turn one on and to start learning such skills as word processing and financial and mathematical calculations.

By the time you reach the last chapter, you will be computer literate—and ready for advice on "How to Buy a Personal Computer." Lombardi comes through, demystifying the process of selecting both hardware and software. Points to consider include not only what you can afford to spend and what you want the machine to do, but questions of compatibility, expandability, obsolescence, and availability of service.

JOHN V. LOMBARDI, Dean for International Programs and Professor of History at Indiana University, is author of books and articles on Latin America. He began working with main frame computers in 1965, graduated to microcomputers in 1978, and has helped many of his academic and administrative colleagues become computer literate. This book is an outgrowth of that experience.

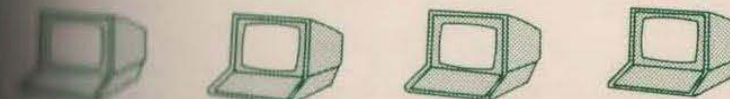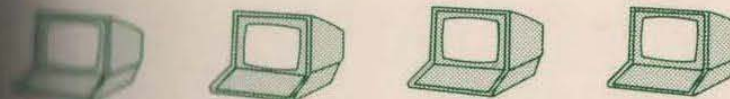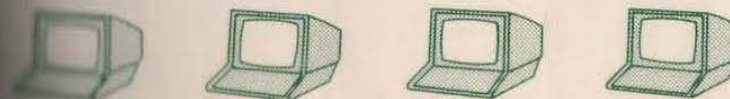Also available in a clothbound edition   ISBN 0-253-31401-1

COMPUTER
LITERACY

The Basic Concepts and Language

By John V. Lombardi

1983
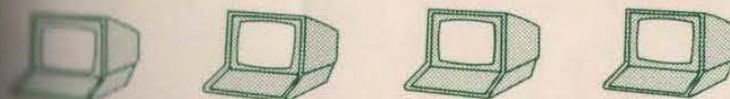
Volkswriter, word processing for the IBM PC

By John Lombardi

Word processors are a bit like shoes: They pinch uncomfortably when new, but after constant use, they become comfortably adjusted to their wearer's habits. After testing a dozen word-processing programs, I've developed a high tolerance for the sore spots each of them produces.

The perfect word-processing program has yet to be developed, although there are many contenders. Indeed, I've come to the conclusion that there never will be a perfect program of this genre, because people have such widely varying needs.

Each word processor has a logic

FEATURES: Volkswriter's design features a flexible and fast full-screen editor and a separate Print module to handle advanced formatting tasks.

The editor permits fast full-screen text manipulation with all the standard editing features, such as block moves, line-word-character deletes, insert or type-over modes, adjustable margins and tabs, automatic word wrap and paragraphing that you can reformat to match new margins.

The editor has a Find and Replace facility, centering ability, block-reads and writes to disk, hanging indents and fast and easy cursor controls.

On a 128K machine Volkswriter can

use no more than 128K RAM), the maximum file size is about 50K when saved on disk.

Volkswriter holds all edited files in memory, and there is no paging of files on and off the disk. Although this limits the file length, it keeps the editor's operations fast and convenient. Many writers prefer to work on their longer pieces in chapter-length sections anyway, so this may not be a disadvantage.

The editor also includes a useful on-line Help facility that displays a block with the 20 function keys, which are identified at the top of the screen when you call the program. You can

turn the display on and off. The Help facility does not, however, include any of the formatting commands or print commands supported by this program.

With the help of the instruction manual, you can redefine the keyboard to generate any displayable characters with any keys. This allows Volkswriter to display scientific or foreign-language symbols or to implement an alternative keyboard layout. The procedure for redefining the keyboard is not trivial, but the instructions are reasonably clear.

Volkswriter accomplishes printing

InfoWorld
Software Report Card

Volkswriter
Version 1.3

	Poor	Fair	Good	Excellent
Performance	☐	☐	☒	☐
Documentation	☐	☐	☒	☐
Ease of Use	☐	☐	☒	☐
Error Handling	☐	☐	☐	☒

System Requirements

● IBM Personal Computer
● DOS 1.1
● 64K RAM
● One disk drive

Price: $195

Lifetree Software, Inc.
177 Webster, Suite 342
Monterey, CA 93940
(408) 373-4718

that, once discovered, helps you to adapt to its style. Satisfaction function of a reasonably close ma between your style and the progra

July 13, 1987

Office Word Processing: The Current Crop

BY JOHN LOMBARDI, REVIEW BOARD

In the fierce battle for word processing supremacy, corporate America represents the most significant battlefield. By capturing corporate steno pools and office word processing, manufacturers of the heaviest duty word processing packages hope to gain a large, captive market. Once an organization commits itself to a word processing package requiring a major investment in training, it remains hooked for subsequent upgrades and available for add-on programs.

Because this market is so competitive, poorly designed packages have long been washed from the lists. The programs we look at here do what they say they will do reasonably quickly and quite competently. Most have more features than any reasonable person or office will ever need, although specialized functions can be a major issue for some organizations. And in fact these specialized functions may be the most important buying criteria for word processing systems.

Of the seven major word processing systems selected for this survey, four originated as microcomputer imitations of dedicated word processing systems characteristic of business offices five years or so ago. Displaywrite 4 mimics a now-defunct IBM system, Multimate Advantage II and Officewriter 5 mimic a dedicated Wang system; and Samna Word IV echoes a Lanier word processor.

Like their ancestors, these page-oriented products edit and display text in terms of pages. Although they initially gained their acceptance as microcomputer copies of dedicated systems, all four have evolved to include many more features and capabilities and can now compete directly with the best programs available.

Two systems — Wordstar 2000 and Word Perfect 4.2 — exemplify the document-oriented approach. This approach treats text as a continuous flow of words, with page breaks shown on-screen but not affecting operation. Of varying power and sophistication, these two systems show their text editing heritage in ease of text entry and revision.

What are the attributes of each? Page-oriented processors are very fast when moving to any page whose number you have, including the end of the document; they are not particularly fast when scrolling through the document because they have to continually retrieve and save. Document-oriented processors of-

fer a more seamless approach of dealing with text. Consequently, using a dictionary, thesaurus, or any like function across page boundaries is much more graceful. (By graceful, we mean that achieving the desired effect requires a minimum of keystrokes, and that the structure of the word processor is unobtrusive so moving from mode to mode occurs smoothly.)

Microsoft Word 3.11 is something of an anomaly, coming to office word processing from a typesetting background. While mostly document-oriented, it places special emphasis on the elements of the printed page and offers an unusually powerful range of format-

ting and layout capabilities.

Whatever their origins, the programs share a common core of word processing capabilities. They handle text with reasonable speed and efficiency, move the cursor around, cut and paste text, check spelling, handle mailing labels and form letters, and perform math functions.

With the exception of Displaywrite 4, all have extensive printer support and facilities to customize that support for special uses or unusual printers. Again, with the exception of Displaywrite 4, all can convert word processing files from one variety of word processor to another, as well as produce standard ASCII files without any word processing codes. All

can convert to and from the IBM standard RFT (revised form text) word processing format. Each has a large, well produced manual, extensive on-line help, and keyboard templates to help learn and use the program's commands.

Most of these programs have received full reviews in *InfoWorld*. The summary that follows offers a quick guide to the major strengths and weaknesses of each.

Displaywrite 4

IBM's heavyweight falls in the group derived from dedicated word processing systems. Version 4 of this product is now powerful, ponderous, and effective. And despite the program's new use of pull-down menus, it's still not a graceful product, requiring users to conform to its own, somewhat quirky use of editing keys. Moreover, the program's speller is only competent — it will not reverse-wrap the cursor from a subsequent line to a previous line with the arrow keys — and control codes can only be deleted with the Del key, not the backspace.

IBM's printer support is among the worst in the business. This product supports only IBM-brand printers, although it is possible for experts to prepare printer drivers for other products. IBM provides no support to individual users at all, presumably expecting dealers or corporate support staffs to handle these issues.

Displaywrite 4 can do a good job of managing complicated document assembly tasks or mailing list operations. Its facilities for these purposes are comparable to those of Multimate or Officewriter. But even the improvements in Displaywrite 4 do not make it competitive with the other page-oriented word systems considered here.

We can only recommend this product for offices with a major commitment to IBM hardware and software, a strong support staff, and a large pool of workers already familiar with IBM word processing products. Displaywrite 4 is not competitive in power, ease of use, or ease of learning, with Multimate, Officewriter, or Samna; among the page-oriented systems. (For a full review of Displaywrite 4, see *InfoWorld*, March 9, 1987.)

Displaywrite 4, $495. IBM Corp., P.O. Box 152560, Irving, TX 75015; (800) 447-4700.

Microsoft Word 3.11

Among the high-power word processing systems included in this comparison,

Selecting Office Word Processors

The programs included in this summary are big and relatively difficult to learn thoroughly, although they differ significantly in ease of first use. Their many features, options, and capabilities provide the user with such a great variety of possibilities that keeping track of what is possible and what works best is a major responsibility. These packages will be most successfully used in offices that can afford to have a word processing expert whose responsibilities include installation, customizing, instruction, and maintenance of the program.

If properly installed for users who have received good training, the power and effectiveness of a major word processing system becomes an asset. If individual users have to learn the program, maintain it, and select which features to use for which tasks, they usually spend too much time exploring the program's complexity and often settle for knowledge of a minimal set of features.

Selecting a word processing package from this group is made more difficult by the fact that all of them are so good. An informed choice has three stages: First, identify your office's most complex, difficult, and lengthy word processing task — then eliminate those word processors that cannot do it. Second, look closely at the unique features of each word processing program and keep only those on

your list whose features serve a useful function for your organization. (This may be sophisticated card file management, complex typesetting needs, telecommunications support, or compatibility with a dedicated system or already trained workforce.) Third, choose among the remaining systems based on users' preferences. (Do they like page-oriented or document-oriented systems; do they like menus or commands; or do they prefer one help system's approach over another's?)

While our preference for Word Perfect 4.2 represents a balanced evaluation of the many features and capabilities of these seven programs, we can easily imagine office environments for which Word Perfect would not be the best program. For example, an organization with a significant investment in Wang word processing technology would be well served by adopting either Multimate Advantage or Office Writer, thereby enhancing the value of training already acquired through the Wang system.

Finally, it's important to recognize that the sophistication of these programs requires significant computing power. None of these can be satisfactorily run on a PC based on two floppy disks. They work well on IBM PC-compatible machines with the standard 20-megabyte hard disk, but they are optimally effective on AT-class computers with fast hard drives.

July 13, 1987

```
Revise Document    |Required Carrier Return|Ins |      |        Pg  6
C:\DW4\FLORIDA.DOC                          |Typestyle BS <1Zp>   Ln  7
   F2=End/Save F4=Block F5=Functions F6=Search F7=Format F8=Instructions
  B........2........3........4.0.....5....
                                         ■ 1. Begin ...
Although at one time some scholars expected area  ■ 2. End ...
develop into autonomous academic departments with
programs, few actually did. The normal pattern f  ■ 3. Footnote
program in a large public university is to have a  ■ 4. Merge Instructions
certificate, a Masters degree program, and a Ph.D  ■ 5. User-defined Control
variations on this theme exist, but most American  ■ 6. Voice Note
resisted the departmentalization of area studies.
exceptions occur.                                 Enter  Esc=Quit  F1=Help

Functions and Resources

All area studies, whether domestic or international, exist to make
something out of existing resources. The first rule of good area studies
is to capture the interest and enthusiasm, the intellectual and creative
energy of faculty in a wide range of academic departments who share a
common interest in the geographic area or topic concerned. The wider the
net cast the better the program.

Few area studies programs thrive, however, without two kinds of
```

IBM's Displaywrite 4 features a new pull-down menu to simplify the user interface. The page-oriented program directly supports only IBM-brand printers.

```
                into autonomous academic departments with their own doctoral  programs, few
                actually did. The normal pattern for an area studies  program in a large
                public university is to have an undergraduate minor  or certificate, a Maste
                degree program, and a Ph.D. certificate. Many variations on this theme
                exist, but most American universities have  resisted the departmentalization
                of area studies. Obviously, some lexceptions occur.

                Functions and Resources

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                in a wide range of academic departments  who share a common interest in the
                geographic area or topic concerned.  The wider the net cast the better the
                program.

                Few area studies programs thrive, however, without two kinds of  resources:
                central resources and marginal resources.

FORMAT DIVISION LAYOUT Footnotes:<Same-page>End
     number of columns: 1        space between columns: 6 p1Z
            division break: Page Continuous Column Even Odd
Select option
Page 5   O                                    Microsoft Word: FLORIDA.DOC
```

The hallmark of Microsoft Word, Version 3.11 is its fine control of the printed document and its support of virtually any printer. Word works well with both mouse and keyboard.

Microsoft Word represents a significantly different approach. Word's strengths are not in typing or editing, but in providing typesettinglike control of margins, gutters, text placement, text enhancements, spacing, and similar elements of the finished document's layout and appearance. And in fact Word's style sheets let users specify exactly how recurring documents (like forms) or long documents (like books) will look, with consistency across multiple users.

For Microsoft Word, the most important part of the document is its appearance on the printed page, not its resemblance to a typewritten document or its flow of edited content. Hence, to understand Microsoft Word and gain the benefit of its exemplary power, you must approach text with the vision of the typesetter. Of course, Word 3.11 has all the useful editing features of major word processing programs; it has excellent form letter and mailing list management; and it offers a complete set of commands for document assembly and other complex text management chores. Its speller and thesaurus perform very well indeed.

But when all is said and done, what distinguishes Microsoft Word from its competitors is its fine control over the appearance of the printed page and its capability to take advantage of virtually any screen or printer to deliver the most precise representation of text the device can produce. Word works equally well with mouse or keyboard, with color or monochrome screens, with graphics or character displays, and with simple or expensive printers. Complex documents can be constructed in Microsoft Word, and its good outlining feature helps enhance the completion of such tasks.

The price paid for this power and sophistication, is in learning time and expertise. Word is not a word processing program for amateurs. It requires considerable attention from the operator, and while its tutorial, help screens, and manuals are excellent, the program is surely among the most difficult to use effectively. In addition, Word is less effective in handling office tasks than some of the more traditional office word processors. For example, it won't deal with page breaks at all until the operator tells it to do so. And setting the page formats can be complicated. However, in offices with strong technical support, standardized style sheets could be built to handle most of the details, allowing operators to produce documents quickly and effectively. Word's printer support is superior and its capability to use multiple windows offers considerable convenience when several documents need to be edited or compared on-screen at the same time.

We recommend Microsoft Word for offices where the precise control of printed appearance is essential, and where the production of complex documents printed on sophisticated printers constitutes a major portion of the work load. Other programs are more effective on standard office chores and much easier to use, learn, and support. (For a full review of Microsoft Word 3.0 for MS-DOS machines, see *InfoWorld*, June 2, 1986. Major differences include current support of a thesaurus, increased number of printer drivers, 3½-inch disks, and IBM PS/2 computers.)

Microsoft Word, Version 3.11 (including 5¼- and 3½-inch disks), $450 for single-user version. Microsoft Corp., 16011 N.E. 36th Way, P.O. Box 97017, Redmond, WA 98073; (800) 426-9400, (206) 882-8088 in WA and AK.

Multimate Advantage II

This powerful package includes most features expected of a major office product. While maintaining the same keystroke commands that mimic the old Wang system, Multimate Advantage II has added pull-down menus and an improved help system that facilitate both learning and use. Multimate now has the more convenient insert method that simply pushes the old text ahead of the inserted text, reformatting the paragraph as it goes along. In addition, the program still permits the old drop-down insert mode: Hitting Insert clears the screen, putting the next line of text at the bottom of the screen. Hitting Insert again closes the gap. Multimate also has a document mode that lets users ignore page boundaries and automatically places page breaks. The original page-oriented operation remains available.

Its greatest strength is in list processing, or the combining of elements from a list into a standard letter or form. Multimate has both a template form for entering lists and a card-file system that permits interesting and elaborate arrangements of data that you typically find on a 3-by-5-inch card. Multimate's math, newspaper columns, side-by-side columns, footnotes, and outline numbering features are also strong. While some other programs have more features, such as line numbering, graphics capabilities, and telecommunication modules, Multimate Advantage has the essentials. The only significant feature missing is indexing.

Multimate Advantage II is a much improved product over its predecessors. Even so, it can only handle documents up to 128K, or about 40 to 50 single-space pages. In some professional offices where the work consists of correspondence and short reports, this limit may not matter, but in businesses that routinely turn out lengthy reports and other documents of considerable size, the 128K limit is a real annoyance. The product is also slow at many functions. The documentation for this product is well-done, extensive, and packaged in seven different booklets. In short, Multimate Advantage II is a competitor in this class. While not as fast as some word processing packages, Multimate Advantage works fast enough on AT-calibre machines. (See full review, page 55 of this issue.)

Multimate Advantage II (no version number), $565 with 5¼-inch disks, $595 with 3½-inch disks as well. Ashton-Tate Corp., 20101 Hamilton Ave., Torrance, CA 90502; (213) 329-8000.

Officewriter 5

Officewriter and Multimate have been locked in competition for the title of most effective Wang imitator for a

```
LAYOUT   TYPESTYLE   CUT&PASTE   LIBRARY  SPECIAL  PRINT   EXIT
or certificate, a Masters degree pro                         y
variations on this theme exist, but  Sort
resisted the departmentalization of  Import ASCII File
|1.................................  Line & Box Drawing              «
exceptions occur.«                   Footnotes
                                     Thesaurus
|1                                   Spell Check Entire Document     «
«                                    Spell Check Portion of Document
Functions and Resources«             Spell Edit Flagged Word

All area studies, whether domestic or international, exist to make
something out of existing resources. The first rule of good area
studies is to capture the interest and enthusiasm, the intellectual and
creative energy of faculty in a wide range of academic departments who
share a common interest in the geographic area or topic concerned. The
wider the net cast the better the program.«

Few area studies programs thrive, however, without two kinds of
resources: central resources and marginal resources.«

|1............................................................«
Central resources are the faculty located in traditional departments and
Press F18 to select.  Follow prompts at bottom of screen.  Press F10
after each step.                                              S:f N:l
```

Multimate Advantage II now has a convenient pull-down menu in addition to its traditional Wanglike interface. It also provides both document- and page-oriented operation.

```
49%    Florida.up   Page:  6 Line: 15 Col:  1            5:56pm
Few·area·studies·programs·thrive,·however,·without·two·kinds·of·
resources:·central·resources·and·marginal·resources.◄

Central·resources·are·the·faculty·located·in·traditional·
departments·and·schools,·engaged·in·teaching,·research,·and·
public·service·who·hold·tenure·track·appointments·in·the·
university.··These·resources·in·addition·include·the·basic·
library·collections·that·support·these·faculty·and·their·
teaching·and·research·in·the·area.··Without·a·reasonable·
complement·of·central·resources·no·area·studies·program·can·

┌──────────────────────────────────────────────────────────┐
│              Special Edit Functions                       │
│                                                           │
│           Press the Desired Function Key:                 │
│                                                           │
│   F1  — Spell Check a Word         F6  — Hyphenate a Word  │
│   F2  — Spell Check the Document   F7  — Hyphenate the Document │
│   F3  — Quick Print                F8  — Query Thesaurus   │
│   F4  — Automatic Pagination       F9  — Number Sections or Outline │
│   F5  — Sort Secondary Document    F18 — Return to Edit    │
└──────────────────────────────────────────────────────────┘
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Like the other page-oriented products, Officewriter, Version 5.0 now offers automatic pagination. The program uses a Wanglike menu system that offers special features.

correspondence, report writing, and mailing-list management requirements, Officewriter 5.0 is a good choice. Its spelling checker and thesaurus are excellent; its ease of learning and use are quite good; and it supports a substantial number of printers. (Officewriter 5 was reviewed in full in *InfoWorld*'s January 26, 1987, issue.)

Officewriter 5.0, $495. Office Solutions Inc., 2802 Coho St., Madison WI 53713; (800) 228-0747, (608) 274-5047 in WI.

however, is its text management capabilities. It has some of the most complete facilities for handling forms, form letters, selective mailing list applications, and complex document assembly that we have seen. Samna also shows an impressive range of capabilities when sorting, selecting, and managing data files.

The program handles proportionally spaced text with style and offers a variety of features to indicate when changed fonts in proportionally spaced text may produce unexpectedly long lines. Al-

pally because of two related characteristics: First, it is the easiest of the heavyweights to learn and use, and second, it offers more features than any competing product. While some tasks can be done better with one or another of the other products reviewed here, no

ized form of footnoting used by lawyers) capability provide a remarkably powerful combination.

Word Perfect's greatest strength, of course, is its remarkable flexibility. Almost infinitely malleable, the program serves the needs of secretaries, mailing-

EDITING MENU

^Blocks	^Tabs and margins	^Print enhancements	^Get help
^Cursor	^Locate text	^Remove	^Quit
^Options	^Next locate	^Undo	^Key glossary

^G means hold down Ctrl key and press G.

to develop into autonomous academic departments with their own doctoral programs, few actually did. The normal pattern for an area studies program in a large public university is to have an undergraduate minor or certificate, a masters degree program, and a Ph.D. certificate. Many variations on this theme exist, but most American universities have resisted the departmentalization of area studies. Obviously, some exceptions occur.

Functions and Resources

All area studies, whether domestic or international, exist to make something out of existing resources. The first rule of good area studies is to capture the interest and enthusiasm, the intellectual and creative energy of faculty in a wide range of

Document-oriented Wordstar 2000 Plus features a mnemonic interface. The product represents a collection of individual programs linked together, including communications.

InfoWorld Benchmark Test Results for Office Word Processors

Test	Displaywrite 4	Multimate Advantage II	Officewriter 5	Samna Word IV	Word 3.11	Word Perfect 4.2	Wordstar 2000 Plus
Load Document	10	1	2	2	Immed.	2	2
Save/Continue	9	Immed.	1	Varies	Varies	9	4
Save/Exit	2	Immed.	2	Varies	Varies	7	5
ASCII Import	18	31	12	2:04	Immed.	11	18
ASCII Export	50	1:24	26	39	4	23	4:18
DCA Translate	11	1:18	20	1:25	50	39	1:22
Cursor Top/Bottom	Immed.[1]	Immed.[1]	Immed.	Immed.	Immed.	7	18[2]
Manual Scroll	2:45	8:29	2:42	2:25	2:43[3]	2:27	4:10
Margin Reformat	59	22	8	1:20	Immed.	Immed.	Immed.
Repage 20 Pages	30	1:25	25	41	14[3]	Auto.	Auto.
Search/Last Word	7	33	5	1:15	10	8	32[2]
Search/Replace	1:31	24	1:09	2:49	*	20	1:11
Append Document	31	7[4]	Immed.	2:18	Immed.	13	51
File Size	120K	100K	89K	122K	88K	86K	86K
Number of Ropes	32	31	31	29	39	30	31

System Configuration: IBM PC AT with 640K, 5.5MB expanded memory. Times in minutes and seconds.
[1] Top of last page of document.
[2] First of four line tests approximately twice as long as remaining three tests.
[3] Tested in character mode. (Manual scroll in graphics mode: 3 min., 50 sec.) (Repage in graphics mode: 15 sec.)
[4] Insufficient memory to search and replace all hits.
[5] Append file was 24K. All other append files were exact size of original document tested.

Product Comparison

• SELECTED FEATURES OF OFFICE WORD PROCESSING PROGRAMS

☑ = Feature exists
■ = More powerful than others
⊠ = Less powerful than others
□ = Feature does not exist

Cursor Movement	Word Perfect 4.2	Samna Word IV	Multimate Advantage II	Officewriter 5	Wordstar 2000 Plus	Microsoft Word 3.11	Displaywrite 4
Beginning of File/End of File	☑	□	☑	□	☑	☑	☑
Character Right/Left	☑	☑	☑	☑	☑	☑	☑
End of Line/Beginning of Line	☑	☑	☑	☑	☑	☑	☑
Page Up/Page Down	☑	☑	☑	☑	☑	□	☑
Screen Up/Screen Down	☑	☑	☑	☑	☑	☑	□
Top of Screen/Bottom of Screen	☑	□	☑	☑	☑	☑	□
Word Right/Left	☑	☑	☑	□	☑	☑	☑
Delete							
Block	☑	☑	☑	☑	☑	☑	☑
Character at Cursor	☑	☑	☑	☑	☑	☑	☑
Character Left of Cursor	☑	☑	☑	☑	☑	☑	□
Cursor to End of Line	☑	☑	□	□	☑	□	□
Line	☑	☑	□	□	☑	□	□
Word	☑	□	□	□	☑	□	□
Insert/Type-Over Toggle	☑	☑	⊠	□	☑	☑	⊠
Move Text (cut or copy)							
Block	☑	☑	☑	☑	☑	☑	☑
Column/Rectangle	■	☑	☑	☑	☑	☑	☑
On-Screen Formatting							
Bold	☑	☑	☑	☑	☑	☑	☑
Center Line	☑	☑	☑	☑	☑	☑	☑
Decimal Columns	■	☑	☑	☑	☑	☑	☑
Delete Formatting Codes	■	■	☑	☑	☑	☑	☑
Hanging Indent	■	☑	☑	☑	☑	■	☑
Hard Page-End	☑	☑	☑	☑	☑	☑	☑
Justify/Non-Justify	☑	☑	☑	☑	☑	☑	☑
Line Spacing, 1-3	■	☑	☑	☑	☑	☑	☑

☑ = Feature exists
■ = More powerful than others
⊠ = Less powerful than others
□ = Feature does not exist

	Word Perfect 4.2	Samna Word IV	Multimate Advantage II	Officewriter 5
Create Directory	☑	☑	□	□
DCA/RFT File Conversion	☑	☑	☑	☑
Delete to End of Page	☑	□	□	□
Delete from Cursor to Begin of Line	□	□	□	□
Delete Cursor to Word Boundary L/R	☑	□	□	□
Document Descriptions	☑	☑	☑	☑
Document Comments (text, not printed)	☑	□	☑	□
Edit While Printing	■	■	■	■
Endnotes Separate from Footnotes	☑	□	☑	□
Find, Backwards (reverse find)	☑	□	☑	☑
Flush Right/Ragged Left	☑	□	☑	☑
Footnotes/Back or Bottom of Page	■	☑	☑	■
Foreign Alphabets	■	■	☑	■
Go to DOS	☑	☑	☑	☑
Go to Page Number	☑	☑	☑	☑
Hard Space	☑	☑	☑	☑
Help (full on-line screens)	☑	☑	☑	☑
Hyphenation (auto/manual)	☑	☑	☑	☑
Hyphenation (dictionary)	□	☑	□	☑
Import 1-2-3	□	☑	☑	□
Include Graphics	□	□	□	☑
Indent Left/Right Margin (temporary)	☑	☑	☑	□
Index	☑	□	□	☑
Insert Text of System Date/Time	☑	□	□	□
Insert Code to Print Date/Time	☑	□	☑	☑
Justify Proportionally Spaced Text	☑	□	☑	☑
Define Keys to Other Characters	☑	☑	☑	☑
Keyboard Macros	☑	☑	☑	☑

Table 1. MicroPro revenues in millions of dollars.*

Parameter	Fiscal Year 1979	Fiscal Year 1980	Fiscal Year 1981	Fiscal Year 1982	Fiscal Year 1983	Fiscal Year 1984	Fiscal Year 1985
Revenues	0.5	1.8	5.2	25	45	72	40
Annual increase (%)		360	288	480	180	160	−55

*Note: Data extracted from S. Rubinstein, "Recollections: The Rise and Fall of WordStar" article elsewhere in this issue and verified with other sources.

Thomas J. (Tim) Bergin, "The Proliferation and Consolidation of Word Processing Software: 1985−1995."

Market Share Word Processing
Spread Sheets

PC word processing market share in units, 1986-1997.

Legend: WordPerfect, Word for DOS, Word for Win, WP for Win

PC spreadsheet market share by units, 1988 to 1997.

Legend: Lotus 1-2-3, Quattro, Excel

Legend: Mac Excel, Mac Word, PC Excel, PC Word
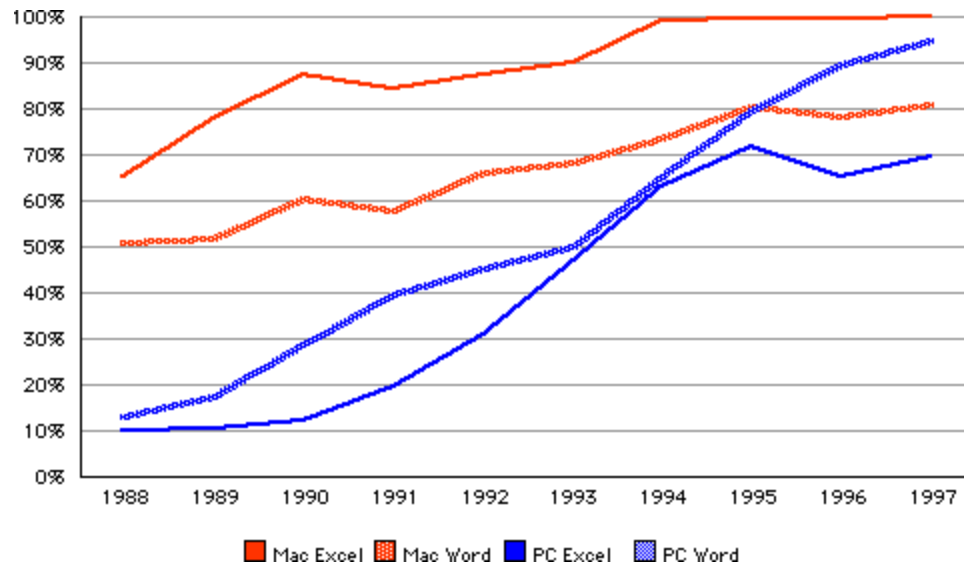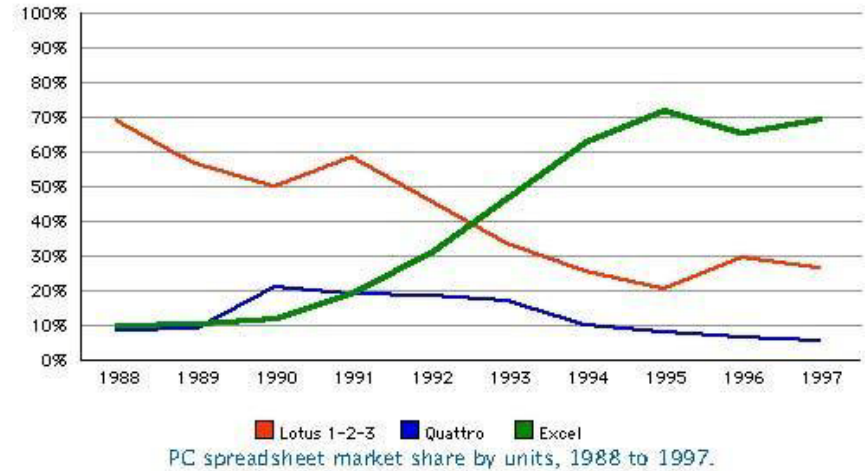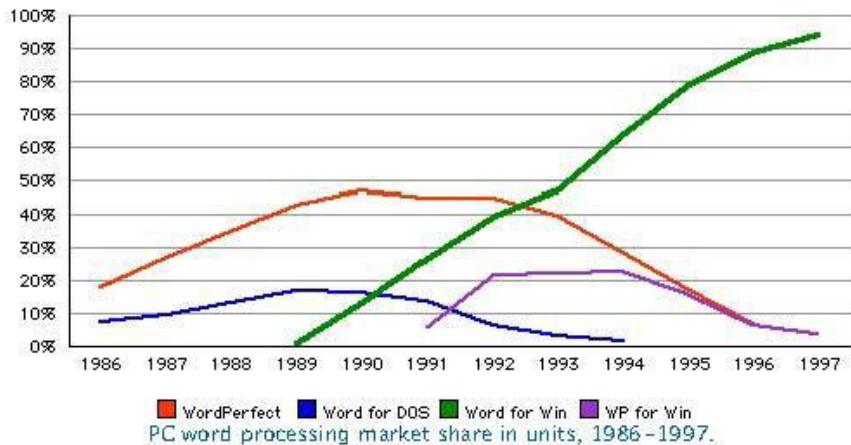
Table 2. Word processing market shares in 1984.

Vendor	Product	Current Market Share and Trend
MicroPro	WordStar	23% falling
Sorcim	SuperWriter	15% rising
Software Publishing	PFS:Write	9% falling
MultiMate International	MultiMate	8% rising
Microsoft	Word	8% rising
Perfect Software	Perfect Writer	7 % falling
Information Unlimited	EasyWriter	6% falling
Life Tree Software	Volkswriter	1% falling
Satellite Software	Word Perfect	1% falling

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Table A. Word processing packages tested by *PC Magazine* in 1986. Bolded entries were *PC Magazine* editor's choices based on price and performance.

Corporate	Price	Professional	Price	Personal	Price
Allegory 1.2	$170	Executive Footnoter 5	$99.95	Bank Street Writer	$79.95
Benchmark 4.4	$395	Executive Secretary V	$69.95	Cut and Paste	$34.94
DisplayWrite 2 1.10	$385	Executive Writer 1.0	$69.95	DisplayWrite 1 1.0	$99
DisplayWrite 3 1.00	$450	Final Draft 3	$395	Easy 1.00	$150
Leading Edge 1.3	$250	The FinalWord 2.0	$395	EinsteinWriter 7.3	$170
MASS-11 5-C	$995	**Microsoft Word 2.0**	$395	FriendlyWriter 3.2	$89.95
MultiMate 3.3 Pro 3.31	$495	My Word! 1.71	$60	Homeword, Pro Ed	$69.95
MultiMate Advantage 3.50	$595	NewWord 2.15	$249	Just Write 1.01	$145
OfficeWriter 3.5	$445	NewWord 3 3.00	$349	**MindReader 2.0**	$189
PeachText 5000 2.11	$295	PC-Write 2.55	$75	MyWrite 1.04	$49.95
Professional QWERTY 3H	$149	Perfect Writer 2.0	$199	Paperback Writer 1.0	$39.95
SAMNA Word III 3.0	$495	Personal WordPerfect 4.0	$195	PC-Type 1.0	$59.95
Word Result 2.0	$495	PractiWord 1.05	$99	Personal QWERTY 3H	$99
WordMARC 4.11	$295	The Professional Writers Package 2.0	$490	**PFS:Write C**	$140
WordStar 2000 Plus 1.01	$595	The Smart WP 2.00	$195	Pronto! 1.0	$69.95
		Spellbinder 5.40	$495	**TEXTRA 3.1A**	$24.95
		SuperWriter 1.03	$295	WordPerfect jr 4.0	$89
		Volkswriter Deluxe 2.2	$295	Wordvision	$50
		WordPerfect 4.1	$495	Write 'N Spell	$149.95
		WordStar Professional 3.31	$495	Writing Assistant 1.01	$149
		XyWrite II Plus 2.0	$295	**ZenWord 1.00**	$29.95

Thomas J. (Tim) Bergin, "The Proliferation and Consolidation of Word Processing Software: 1985–1995."

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