About Dan Bricklin's Special Short Paper for the Harvard Business School Advertising Course

This is a copy of a paper I wrote as a class assignment in the fall of 1978 for Prof. Stephen Greyser's Advertising course. The assignment was to write a private, few-page paper due by December 1. It was to be in the form of a short descriptive case on an advertising management issue or 2-3 very brief caselets on related facets of such an issue. Accompanying the descriptive material was to be our own comments/analysis of the case situation. I chose to do a 2-part case.

For my paper I chose to address the issue of advertising for the program I was developing, eventually called VisiCalc. The final name had not been chosen (or even proposed, I think), so I used "Calcu-ledger" as a placeholder. Eventually, Dan Fylstra, the head of Personal Software, decided to use "VisiCalc" as the name. I needed to make the "case" revolve around advertising, so I made assertions about choices and beliefs at Personal Software that may or may not have actually been true. (For example, I was not the one tasked with creating their advertising as asserted in the paper.) However, the background material and other writings that I provided should be of interest from an historical perspective.

More information about the history of the development of VisiCalc can be found in my book, *Bricklin on Technology* (Wiley, ISBN: 978-0-470-40237-5).

Daniel Bricklin, April 2009
www.bricklin.com

SPECIAL SHORT PAPER

FOR THE HBS

ADVERTISING COURSE

Daniel Bricklin
05300

"I wonder if advertising is the best way to promote my new product, Calcu-ledger. And if it is, how should I go about it? Maybe what we have been taught in the Advertising course would help," thought Dan Bricklin, a second year MBA student at a well known eastern business school. Dan had finished the design of a new computer program for use on a home computer. A well established software publisher had agreed to distribute the product when it was completed, and a highly skilled programmer had started to do the actual programming. Due to various circumstances, Dan had the task of coming up with the marketing: general advertising design, promotional material, dealer literature, and the instruction manual.

Background on the Home Computer Industry

The home (or "personal") computer industry was a new and rapidly expanding industry in the fall of 1978. What had started out as a series of do-it-yourself kits when microprocessors ("the computer on a chip") first became available, had matured into slick, high volume products being sold in hundred of stores coast to coast. People bought these machines (at from $300 to $3000 and up) and used them for a variety of purposes. One of the most popular applications was to play games on the computer's display screen (games such as STAR-TREK, chess, blackjack, etc.), many of which were borrowed from the more expensive timesharing systems, or patterned after the more popular video games. A very strongly desired application was to use the personal computers for real work, such as finance, bookkeeping, and checkbook balancing. Unfortunately, the lack of good permanent storage on most of the lower priced computers made these applications difficult, and cumbersome. Also, many of the machines came equipped with very little good applications software from the manufactures (they were too busy writing the software needed to make the machines run at all).

Since most of the people buying the home computers were not professional programmers, and did not have the time and expertise necessary to write the programs for all of the applications they wanted to run on their machines, a new market was created -- the market for programs for home computers. To some buyers (those with no programming ability), the belief that there was a vast supply of useful software that could be purchased for their machines was the only way that they could justify their original purchase. In addition, many magazines sprung up, catering to the new group that home computers had created, the "computer hobbyists". Many computer professionals ignored this entire industry (viewing the machines as mere toys). Therefore, much of the software being sold, and the articles being written for the magazines, was produced by people new to computers, with little formal training. The quality of their work varied from very good to extremely poor. The demographics of the owners of home computers, though, was very upscale. With an average income of probably $20,000, and a college education or more the norm, it was not your everyday mass audience.

The home computer market was dominated by three manufacturers in December 1978: Radio Shack (they produced the TRS-80), Apple Computer (the APPLE II), and Commodore (the PET). Between them, they had sold well over 100,000 units, at an average price of over $800 (including accessories). Software publishers (the companies that bought the rights to applications programs and distributed them) found that by just concentrating on these three machines they could sell thousands of copies of programs at $7 to $40 each. Initially, the main marketing technique was to advertise in the hobbyist magazines, though they later got the dealers to pick up some of the software brands, and push them through the stores. Some of the manufacturers were even known to let a publisher distribute highly desirable programs through their own distribution networks.

One of the most successful software publisher was Personal Software. PS sold just a few products, compared to the hundreds of programs offered by some of their competitors. PS, though, emphasized "high quality" programs -- ones that you would have found very difficult to have done any better yourself and that could command high prices. One of their most popular products was MICROCHESS by Peter Jennings, one of the best home computer chess products available, which sold for $19.95. Most of their products had been on the market for several months, though, and they were looking for some new, exciting products for introduction in early 1979. They were hoping that Dan Bricklin's Calcu-ledger program could be one of these.

Calcu-ledger

The idea for the Calcu-ledger program arose during Dan's first year in the MBA program. After hours of pushing numbers on pro-formas and production projections, he invariably found that one of his initial calculations was in error, invalidating all of the numbers that followed it. "If only I had a magic piece of paper where I could change a number at the beginning of a set of calculations, and have all of the other numbers automatically recompute themselves. I wouldn't mind walking it through the calculations the first time, but not the second, third, or hundredth time...then I could do Sensitivity Analysis!...If only I had an electronic spreadsheet," were some of the ideas that went through his head.
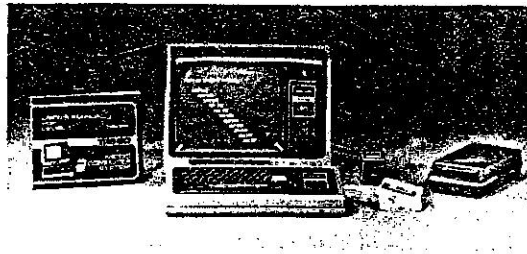
Over the next several months the idea of an electronic spreadsheet took shape. Dan's heavy background in computers and word processing helped in the design. The only problem was that the computer to run the spreadsheet program appeared to be too expensive. Finally, Dan got together with people from Personal Software and found that he could get a prototype of his program working on an APPLE II home computer, solving the cost problem. PS liked the concept, and encouraged him

to get the final version working (they were even willing to lend him an APPLE II on which to do the programming).

Dan got his friend Bob Frankston (a professional programmer) to join him in a venture to produce a marketable version of the electronic spreadsheet. Bob would do the programming, and Dan would do the instruction manual during his winter vacation. In addition, PS felt that it would be good if Dan could come up with the initial advertising and promotional design. To aid him in his decision on how to promote this new product, Dan had examples of advertisements for home computer software. The price had been set at $34.95, and he was tentatively calling the product "Calcu-ledger".
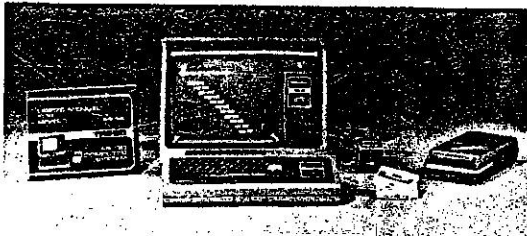
Radio Shack's personal computer system?
This ad just might make you a believer.
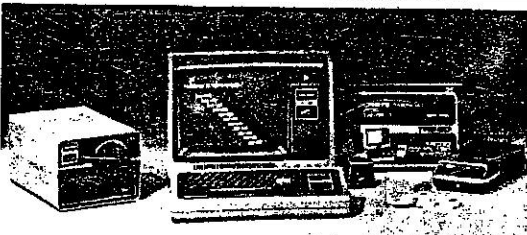
You can't beat the 4K system at
$599

TRS-80 "Breakthru"
- TRS-80 microcomputer
- 12" video display
- Professional keyboard
- Power supply
- Cassette tape recorder
- 4K RAM, Level-I BASIC
- 232-page manual
- 2 game cassettes

...or the step-up 16K system at
$899

TRS-80 "Sweet 16"
- Above, except includes 16K RAM

...or the fast 4K/printer system at
$1198

TRS-80 "Educator"
- Above, except includes 4K RAM and screen printer

...or the Level-II 16K/printer/disk system at
$2385

TRS-80 "Professional"
- Above, except includes 16K RAM, disk drive, expansion interface, and Level-II BASIC

So how are you gonna beat the system that does this much for this little? No way!

...The amazing new 32K/Level-II/2-disk/ line printer system at
$3874

TRS-80 "Business"
- Above, except includes 32K RAM, line printer, and two disk drives

sensational software

Why should you select Creative Computing Software?

1. Highest quality programs—outstanding applications for education, recreation, business, and household management.
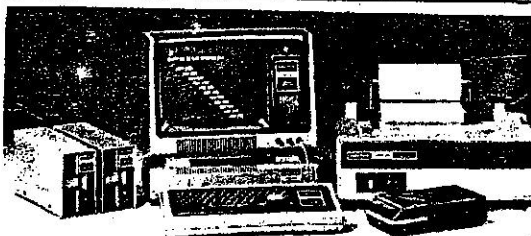2. Best value—up to *ten* different programs per tape.
3. Reliability—programs thoroughly tested and de-bugged.
4. Redundant recording— *two* copies of every program on each tape.
5. Professional quality tape—high density oxide, 100% calendered, flat frequency response, low noise, high output.
6. Anti-jam cassette—teflon lubricated six-rib gasket, hard welded windows, double locking self lubricating hub, double flanged rollers on stainless steel pins, heavy metal shield.
7. Hard plastic box—best protection, easy to file.
8. Widely available—carried by most retail computer stores.
9. Made in U.S.A.
10. Inexpensive—best value per dollar of *any* software.

A Word About Tape Quality

All video tape, most computer tape, and some good cassette tape is calendered. Calendering is what gives tape the smooth, glossy appearance on the oxide side. (Compare a Maxell UD tape to a poly pack tape and you'll see the difference.)

As you know, if your tape heads are dirty, you lose frequency response. A rough tape surface causes virtually the same effect as dirty heads. It prevents intimate tape head contact with the main body of the tape. When tape is coated, it has millions of microscopic peaks and valleys. Calendering eliminates the peaks and valleys, causing a very smooth surface. In addition, since there are no rough peaks, there is less oxide ruboff and less head wear.

Calendering is just one of the many high quality features you'll find in Creative Computing Software cassettes. We could have purchased cassettes for half the price that would have worked, but we wanted to be sure that our cassettes would last for years and would give you an error-free program load *every* time.

Rather than rush our software to market, we've paid attention to tape quality, the cassette mechanism (it *won't* jam), redundant recording, and packaging (hard plastic box) as well as the programs themselves. With Creative Computing Software, you can be sure you're getting the absolute best that money can buy.

PET (8K) Software

CS-1001. Logic Games-1. Six favorites from *BASIC Computer Games* with super graphics. **Awari**, the African logic game with 12 pits and 36 beans. **Bagels**, which challenges you to guess a secret 3-digit number. Martin Gardner's **Chomp** in which you chomp on a cookie with a poison corner. **Flip-Flop**—change a row of X's to 0's. **Hexapawn** played with three chess pawns. **Hi-Q**, a solitaire peg-removal game. $7.95.

CS-1002. Number Games-1. Six number logic games including **Guess** in which you guess a secret number. **23-Matches**—try not to take the last match. **Letter** in which you guess a secret letter. **Number**, a random jackpot game. **Trap** in which you trap a mystery number between two trap numbers. **Stars** gives you stars as clues to the secret number. $7.95.

CS-1201. Sensational Simulations-1. Five super simulations including the popular **Animal** in which the computer learns animals from you. **Fur Trader** lets you trade furs in old Canada. **Hammurabi** in which you manage the city-state of Sumeria. Or try making your fortune in the **Stock Market**. A logic game, **Word**, has you guess secret words. $7.95.

CS-1003. Logic Games-2. Six challenging puzzles including **Rotate**, in which you order a matrix of random letters. **Strike-9**, try to remove all nine digits without striking out. The classic number game, **NIM**. In **Even-Wins** try to take an even number of chips. **Hi-Lo**, a number guessing game with a jackpot. **Batnum**, the super "battle of numbers!" $7.95.

CS-1004. Graphics Games-1. Five amazing realtime graphics games designed especially for your PET. In **Chase**, one player pursues the other through a maze of obstacles and "zap doors." **Escape**—attempt to escape from a prison patrolled by robot guards. **Dart** provides arithmetic drill and indicates how close your response is to the correct answer on a dart board. In **Snoopy** you compute distances on a number-line while trying to shoot down the Red Baron. In **Sweep** you must try to hit nine targets in order by controlling the path of a cannonball. $7.95.

CS-1005. Graphics Games-2. Six favorite games. **LEM**, lunar lander with a graphic display and optional auto-pilot. **Nuclear Reaction**, a game of skill for two players. **Artillery**, in which two players shoot it out over computer-generated terrain. **Bounce** traces the path of a ball bouncing around the screen. **Checkers**, with graphic display, from our *BASIC Games* book. **Dodgem**, try to outmaneuver another player or the computer to get your pieces across the board first. $7.95.

CS-1006. Conversational Games-1. Talk to **ELIZA**, the computerized psychoanalysis program. Compose poetry with **Haiku**. Challenge your vocabulary and word-guessing skills with **Hangman**. **Hurkle**, try to find the hurkle on the 10 by 10 grid in five moves. In **Hexletter**, you compete to capture more letters on a hexagon than your opponent. $7.95.

CP/M Software

CS-9001. Games-1. An 8" floppy disc containing most of the first fifty games from *Basic Computer Games* in Microsoft Basic. All the games from Acey Ducey to Hi-Q including such favorites as **Animal, Bullfight, Craps**, and **Hangman**. (To run this, you need CP/M and Microsoft Basic.) $17.95.

CS-9002. Games-2. The second half of Basic Computer Games including **Life, LEM, Mugwump, Stars, 23 Matches, Word,** and forty more! 8" floppy disc. $17.95.

Exidy Sorcerer

Write for latest releases.

Ohio Scientific Challenger

Write for latest releases.

SOL-20 Software

Write for latest releases.

To Order...

Creative Computing Software should be stocked by your local retail computer store. If your favorite outlet doesn't yet offer it, have him call C.J. at 800-631-8112. (In NJ, 201-540-0445).

Or you can order directly from Creative Computing. Send your check for tapes plus $1.00 shipping and handling per order to Creative Computing Software, P.O. Box 789-M, Morristown, NJ 07960. NJ residents add 5% sales tax. Visa or Master Charge are acceptable also. For faster service, call in your bank card order toll free to 800-631-8112. (In NJ, 201-540-0445).

creative computing software

The Analysis (A)

The analysis of this case (ending in telling Dan what to do) requires the

answering of two questions: Is advertising applicable to this situation,

and if so, is it appropriate for this product. Assuming a "yes" answer

to both of these questions, we must then examine the market that we are

selling to, decide upon the media, and decide upon criteria for evaluating

the message. A brief discussion of money and measurement would also be

helpful.

In selling software of this type, advertising appears to be one of the

most appropriate marketing tools. While traditional software products

had relied on salespeople pushing expensive products ($2000 - $20,000 per copy),

the volume and low price ceilings involved in home computer products lends

itself more to direct response advertisements. The proliferation of computer

stores also means that you can use national advertising to get people into the

stores to see your product on display. This dealer support helps create goodwill

with the dealers, and with the large number of software producers, is required

by many dealers before they will consider carrying your product. Also, since

Calcu-ledger is a new type of product (nobody else provides an electronic

spreadsheet for personal computers) advertising is a good means for creating

product awareness. A problem is that this new product type is hard to explain

in a static advertisement, implying the use of television (not appropriate at

this point -- see below) or dealer demonstration.

Given that we should advertise for products of this type, is our product appropriate

to advertising? Since it is differentiatable, having a good brand name (PS),

high quality, copyright and with a (hopefully) catchy name, it seems right.

The people who spent $1000 or more on their home computers will surely be interested

in seeing what we have to offer, since they have to buy software such as ours
to justify buying their machine.

The market that Personal Software (PS) has decided to address is the market of
those people who already own a personal computer. PS feels that it is easier
to sell a $19.95 item to someone with a $1000 machine, than to convince someone
without a home computer that your application is worth $19.95 plus a $1000 computer.
This means that Calcu-ledger must be targetted at all owners of APPLE computers,
rather than just financial people (with or without home computers). This has
affected the design of the product, such as causing the addition of features for
engineering since people with home computers are supposed to have a scientific
bent.

The media decision was the simplest one. The money constraints keep us out of
television, even though is would be the best way to explain what the product is.
Also, the people who own personal computers probably play with them rather than
watch television, so that you would not only have wasted coverage, you wouldn't
get complete coverage. Another problem is that you want to provide the buyer
with all the information needed to make a purchase decision in the advertisement.
Once you have caught their attention (just the name of their computer seems
to be adequate to do this) they will read detailed ads to see if the product will
solve problems that they have, or help justify the machine purchase. This high
information content implies print as a media. Also, the availability
of computer hobbyist magazines provides a means for getting good coverage -- lots
of the prospects out of the total number available, with little wasted coverage,
all at a reasonable price. If your product won't work on their machine, the reader
at least will be exposed to your product so that they may be more aware when you
have a version that works on their machine. The climate of the magazines (with

many poor products that claim to address the same application areas that Calcu-ledger does) is not very helpful. This can be countered, we hope, through the goodwill of the PS brandname. People know that PS has the best chess program, maybe they'll realize that it has a good financial tool, too.

The message is the hard part. Calcu-ledger is a new type of product. It is an interactive tool, hopefully the first of many, that aids a person in solving problems, that doesn't just provide pre-canned solutions to another person's view of the problem. It is very important that we position the product correctly, so that it is not mistaken for another pre-canned solution to financial problems, or another attempt at bookkeeping on a home computer that doesn't let the users customize the program to their own special needs. It must not be viewed as just a simple hand calculator implemented on an expensive computer, nor something only for use by someone with a financial bent or programming expertise. Its versatility must be stressed, as well as some way of saying that it makes it easy to do sensitivity analysis (though many people don't know what that term means). It must be a believable ad, or else people will discount it as being another over-zealous claim by a software publisher. The ad must catch people's attention. And finally, it must convince them that they must buy the product now (by calling PS's "800" number) or at least go to their local computer store to see how it works (PS will attempt to have it on the dealers' shelves before the ad appears in the magazines).

The money to be spent on advertising this product will have to be more than that normally spent by PS on a new product (such as a new program that plays bridge), since it is so different and it will take more space to adequately present it. This is offset by the high price ($35 vs. a normal value of $15 or $20).

No special measurement is planned at present. All ads are "keyed" so that there can be some feedback with the direct response purchases about the effectiveness of the first ad in bringing in sales. The media, though, has worked well in the past. Since direct sales is an important part of PS's income, it is also a good measure of ad effectiveness in this case. It is not known, though, if the format chosen by PS (half page magazine ads) for this introduction is adequate for introducing such a new product. An attempt will be made to pre-test the ads informally on the salespeople in local computer stores, and hopefully some of their customers, just to check that we didn't completely miss the boat.

In conclusion, I feel that advertising should be used, that it is appropriate. Hobbyist magazines are a good media, and the message must get across the ideas mentioned above.

Dan Bricklin had decided to go ahead with advertising his new software product Calcu-ledger in the computer hobbyist magazines (see Calcu-ledger (A)). He had before him the layout and the text of a proposed ad. Having just finished writing the ad, he now had to evaluate it in light of the criteria he had established.

A NEW, GENERAL PURPOSE TOOL FOR YOUR APPLE!

SALES 1978 1979
COSTS
DIRECT
IND

FINANCIAL ANALYSIS

OSCILLATOR CHAR
R1 =   FREQ:
R2 =
C1 =

ENGINEERING

ITEM   AMOUNT BAL

RECORDKEEPING

JAN FEB MAR
OPEN BAL

BUDGETING

CALCU-LEDGER — The Easy Way to Calculate, Without Programming!

Orders: Check

CALCU-LEDGER by — — — — .. $34.95

P.O. Box 136-B3   PERSONAL SOFTWARE™   Cambridge MA 02138

Half page ad for Calcu-ledger. Box at the bottom is white on black, with normal
Personal Software "Dial Toll Free 1-800..." information (see exhibit to (A) case).

Details of the photographs of the computer screens at the top of the ad:
(They are all close ups of a section of the screen to improve readability.)

	1978	1979	1980
SALES	123.4	143.7	188.0
COSTS			
DIRECT	52.4	60.6	97.2
IND.	12.2	13.5	17.4
MARGIN	58.8	69.6	73.4

FINANCIAL ANALYSIS

OSCILLATOR CHARACTERISTICS

R1=	1200	FREQ.=	15234
R2=	100	GAIN=	-14
C1=	.2		
BETA=	127		

ENGINEERING

ITEM	AMOUNT	BALANCE
TYPING PAPER	(1.98)	201.15
DEC. GAS	(55.21)	145.94
DEPOSIT	100.00	245.94
BOOKS	(22.50)	223.44

RECORDKEEPING

	JAN	FEB	MAR
OPEN BAL	223.44	279.02	199.80
FOOD	120.00	125.00	130.00
RENT	325.00	325.00	325.00
INS.	0.00	179.57	0.00

BUDGETING

TEXT OF THE BODY COPY OF THE AD:

First came pencil and paper, then the slide rule, and then the calculator. Now there's Calcu-ledger, the next step. This new tool is so versatile and powerful that you'll use your APPLE for applications that would have taken too long to program in BASIC to be worthwhile. Even if you don't know how to program, you'll find Calc-ledger easy to learn to use. Its features make it especially well suited for use in the home and business, for finance, engineering, education, and even bookkeeping.

With Calcu-ledger, you use the cursor keys to set up the computer screen just as you would a sheet of paper -- labeling columns, typing values and operations, and making changes when you change your mind about what is best. The screen scrolls in all four directions and can hold hundreds of values, even on a 16K system, so your computerized "sheet of paper" is large enough to handle even very complex problems. Calcu-ledger makes it easy to sum the values in a row or column, insert new values, and even have an entire row or column calculated following your example in its first entry. These features make it great for simple bookkeeping. For finance, it can easily calculate the present value of cash flows, find the change between entries in two rows, and even calculate internal rate of return and depreciation. You can even have it graph the values in any row or column. For engineering, it can calculate the standard trigonometric functions, as well as logarithms and square roots. In all of these applications, if you make a change to any of the entries, all other values on the screen will be updated automatically and redisplayed instantly, with no programming. This makes it easy to ask the "what if..." questions that make computers so useful.

Here's a simple example of how you use Calcu-ledger: Suppose that you want Interest to be .08 times the Balance. You just position the cursor where you want the computed

value to appear, type ".08*", then point to the Balance value (using the cursor) and press RETURN. The computed Interest value will appear instantly.

Written in machine language for speed and versatility, Calcu-ledger is a high quality program with careful attention to human engineering. All numbers are stored in 12 digit decimal floating point for accuracy. You can save data on tape or diskette, or dump to a printer. It comes with a complete instruction manual, which includes a tutorial, full functional specification, and examples of use for both home and business.

Try Calcu-ledger now at any of our dealers and see how easy it is to use, or order it direct from us at the number below.

CALCU-LEDGER by Dan Bricklin and Bob Frankston, for 16K APPLE II.........$34.95

<u>The Analysis (B)</u>

While the ad is not too flashy, it should catch the attention of owners of
APPLE's due to the use of the name APPLE in the upper right corner, and the
computer screen closeups. In addition, the PS logo at the bottom should be
noticed by anybody who has purchased software from them (thousands of APPLE
owners). If it weren't for the interest that the readers of the hobbyist
magazines have in anything related to their machine, this simple ad layout
may not be appropriate.

The top part of the ad emphasizes that this is a new product that can be used
for many different types of applications (the word "general purpose" and the
four different examples of use). The name "Calcu-ledger" emphasizes that this
is a single product, and not a collection of pre-canned solutions. Finally,
it is said that the new product is easy to use, and doesn't require programming.
"How do they do all this without requiring programming",the reader would
wonder, tempting them to read on. The PS logo at the bottom will hopefully
reassure them that this promise can indeed be delivered.

The first paragraph attempts to position the product. It is more advanced than
the calculator, yet still in its class by being a tool, and easy to use. The
computer owner's desire to make practical use of the computer is addressed. This
fits very well with the idea of a tool — something that is useful, practical, and
not just a toy.

The second paragraph lists many of the features of the product, and attempts
to show how these make it useful for various applications. It opens with a
description of the mode of operation of the product -- just like the familiar
piece of paper. It then shows how special features make it better than paper,
even paper with a calculator (rows and columns are hard to work with in a calculator).

Not only is it better than the old tools, it does things that are hard to

program on a machine such as the APPLE -- things like inserting new values,

following examples, and knowing what to change automatically.

At this point the reader is probably wondering how the product could be so

easy to use if it has so many special features. The purpose of the third

paragraph is to show how simple the operation is -- probably simpler than

the reader expected, yet obviously possible on a computer.

The fourth paragraph attempts to reassure the reader of the quality of the

program, and the good chance it will have of fulfilling expectations. To

many people new to computers, programs written in machine language connote

speed of execution, attention to detail, and knowledgable authors. Most programs

on the APPLE only give 5 or 7 digit accuracy -- 12 digit ranks with the best

calculators, and is more appropriate to business. It would be difficult for

the reader to get such accuracy in calculations normally. This should

let the reader know that the product is probably of better quality and ability

than the reader could produce alone. Any worry of it being _too_ advanced is

hopefully removed by the existence of an instruction manual.

Finally, the reader is asked to purchase the product, or at least to try it out,

supporting PS's dealers.

The ad appear to meet the criteria set in the analysis of the (A) case, except

for two reservations. It cannot be told from reading it whether the ad will actually

get people to buy the product. Also, it gets several ideas across and requires

careful reading. This means that it is depending on the assumption that hobbyists

like to read ads in detail so that they can make their purchase decision right

then and there.

A final word on the name "Calcu-ledger." Currently, this appears to be the best name that I have been able to come up with. It has the unfortunate trait of not evoking the right image when heard out of context (ledger sounds too much like bookkeeping and accounting, and not easy use for non-accounting uses by non-accountants). Once the uses of the product are understood, though, its name becomes more appropriate (ledger is also a series of columns and rows). The uses are emphasized from the start in the ad, so I don't think that there will be many problems. Also, the name has a nice ring to it. Other names that I have thought of, such as "electronic spreadsheet" or "calcu-paper" don't sound right, or may not be understood by people, even after they know what it is (not everybody knows what a spreadsheet is, ledger is more common).