

# **LIGHT YEAR**

January 23, 1985

David D. Redhed  
712 35th Avenue  
Seattle, WA 98122

Dear David:

I truly appreciate your letter and I agree with you. Lisa was a tremendous challenge and a satisfying accomplishment for all involved. It's unfortunate that so many other software products (Network, datacom and greater integration and functionality within the applications) were never allowed to see the "light of the market". As you may know, large companies sometimes get political.

Since you are obviously a member of the "Lisa Club" I will be sending you a present that I had made up for all Lisa contributors. I'm sure you'll enjoy it.

Sincerely,



John D. Couch  
Chairman of the Board

David T. Craig  
10700 Academy Road NE, Apt. # 922  
Albuquerque, New Mexico 87111  
(505) 299-0308

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24 January 1993

Mr. John Couch  
FISK Communications  
210 Lomas Santa Fe, Suite 360  
Solana Beach, CA 92075

Re: Apple Lisa computer

Dear Mr. Couch:

Thank you very much for the second Lisa walnut plaque. I shall send it to a former Lisa enthusiast in Seattle Washington. He is named David Redhed and tried very hard in the middle 1980's to get Apple to support the Lisa. He will be thrilled to receive such a memento from the Lisa days.

I shall not bother you again about the Lisa since your involvement with Apple ended many years ago and you most likely want to put this part of history behind you.

If you ever come across any Lisa software planning or scheduling documents I would be very interested in seeing a copy. I work as a computer programmer and from what little I know about this facet of the Lisa's development I think I could learn something from documents of this type that would benefit my own programming work.

You may be surprised to know that this letter was written with LisaWrite. This proves that the Lisa is still a viable machine, a decade after its introduction.

Thanks for making the Lisa and good luck with your current activities in the new year.

Sincerely,

---

David T. Craig

Desk File/Print Edit Format Customize

DTC Paper 01/24

David T. Craig  
10700 Academy Road NE, Apt. # 922  
Albuquerque, New Mexico 87111  
(505) 299-0308

24 January 1993

Mr. John Couch  
FISK Communications  
210 Lomas Santa Fe, Suite 360  
Solana Beach, CA 92075

Re: Apple Lisa computer

**Calculator**

Memory: 0

3.14285714286

MC M- M+ MX  
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**Clock**

4:05 pm 01/24/93

-HS Phone Notes job stuff

HS 92 - Forms

WasteBasket

Calculator

Clipboard

Clock

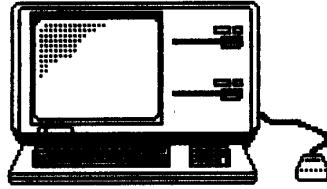
Preferences

-Profile

DTC Paper

-Widget

DTC Paper 01/24



Apple Lisa Personal Computer  
1983 - 1985

## Apple Lisa Comments by Burt Cummings

DTC - 13 Jan 1995

Sender: cummingsbu@aol.com  
Received: from mail04.mail.aol.com by arl-img-3.compuserve.com (8.6.9/5.941228sam)  
id SAA02746; Fri, 13 Jan 1995 18:47:50 -0500  
From: <CummingsBu@aol.com>  
Received: by mail04.mail.aol.com  
(1.38.193.5/16.2) id AA12845; Fri, 13 Jan 1995 18:44:41 -0500  
Date: Fri, 13 Jan 1995 18:44:41 -0500  
Message-Id: <950113184434\_127065@aol.com>  
To: 71533.606@compuserve.com  
Subject: Re: Apple Lisa

Actually, the MRD process was part of the problem in my opinion. Before doing third party programs, I was Tech Support Manager, and I was always stunned at the formality (read lack) of communication between engineering and marketing. Sitting on the fence as I did between the two groups, it was a tightrope act to walk. There was no love lost between engr & mkttg, and meetings were very tense, and the meetings were to hash out MRD & engineering responses.

Why more wasn't done collaboratively with decisions arrived at jointly was in my mind a waste. It was funny, I remember when I was leaving, and Steve Jobs had just folded the group into his (in a very ugly manner), and one of the marketing guys stopped by my desk as I was clearing out to go to Higher Education Sales. He looked like he was in shock (name withheld as now a senior exec), and asked me what had happened, where did they go wrong? I laughed - and said that if perhaps there had been a little more talking and a little less letterbombing, things might have worked more smoothly, specifically a better defined product out sooner.

As it was, I'm a firm believer that it was simply too soon and too expensive. The discussions we had with large business, the only ones who could afford,

**APPLE LISA COMMENTS • BURT CUMMINGS • 13 JAN 1995 1**

were fascinating. They could not fathom the following in this order:

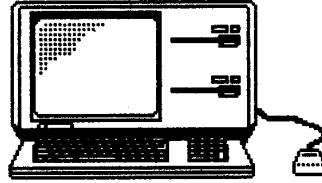
- 1) Microcomputers (although they wouldn't admit it!)
- 2) The Mouse!
- 3) Keyboards without function keys

OK, enough diatribe for now, but the conversations about the above were particularly telling, so don't let me forget to give you more on that. Really, the discussions and objections were incredible!

/Burt

OH yeah, and to answer your question, I do have one of those clocks. Actually, John also gave 1 week paid and expensed vacations to a couple dozen employees, and I was fortunate to be one of them. It was the greatest recognition I think I've ever received, meant a great deal to me. John was simply the best.

**End of Document**



Apple Lisa Personal Computer  
1983 - 1985

## Lisa Comments by Burt Cummings

23 February 1995

From: INTERNET:CummingsBu@aol.com, INTERNET:CummingsBu@aol.com  
To: David Thomas Craig, 71533,606  
Date: Wed, Feb 22, 1995, 5:52 PM  
Subject: +Postage Due+Re: Apple Lisa

Sender: cummingsbu@aol.com  
Received: from mail06.mail.aol.com by dub-img-1.compuserve.com (8.6.9/5.941228sam)  
id TAA14311; Wed, 22 Feb 1995 19:38:45 -0500  
From: <CummingsBu@aol.com>  
Received: by mail06.mail.aol.com  
(1.37.109.11/16.2) id AA132269924; Wed, 22 Feb 1995 19:38:44 -0500  
Date: Wed, 22 Feb 1995 19:38:44 -0500  
Message-Id: <950222193842\_29466250@aol.com>  
To: 71533.606@compuserve.com  
Subject: Re: Apple Lisa

Thanks for the articles. I did have your questions, although the plane trip I planned to answer them on I had another project I had to finish instead, so didn't make it. I'll take a stab at them now. My response is in caps.

I hope I don't disappoint - my memory of all this is pretty hazy. In fact, I don't even remember what the development system WAS for it! But I do know it was in flux....

/Burt

1) How many 3rd party developers really developed working Lisa desktop-based applications? My research has shown that there were only around 3 or so (eg a typesetting system).

I DON'T KNOW HOW MANY WERE ACTUALLY DELIVERED, BUT WE HAD A GOAL OF I BELIEVE A DOZEN THAT WERE TO BE REFERENCEABLE WHEN WE SHIPPED, AND WHEN WE STARTED CLOSING DOWN SHOP, WE HAD ABOUT 8 COMMITTED. I DOUBT IF ANY OF THEM, OTHER THAN THE TYPESETTING COMPANY ARE STILL IN EXISTANCE.

2) Was Microsoft ever involved in Lisa development? If so, what was their involvement? I recall reading an interview with Bill Gates in which he said something to the effect that he was disappointed that MS was not more involved with the Lisa.



THEY WEREN'T, PROBABLY FOR THE REASON THAT THEY DIDN'T HAVE ANYTHING TO OFFER AT THE TIME. THEIR SKILL SETS DIDN'T MATCH OUR NEEDS AT THAT TIME: WE DIDN'T NEED AN OS OR MORE PRODUCTIVITY SOFTWARE, WE WANTED TO ROUND OUT WITH ACCOUNTING, TYPESETTING, ETC.

3) Was the lack of a working Toolkit the chief reason for the lack of 3rd party applications? In an interview with Dan Smith (a Lisa desktop manager writer) he said that Apple had originally designed the Lisa software architecture for Apple's internal use and not for outsider programming.

Smith stated that Apple planned to write all the Lisa s/w. I'm referring specifically to the Lisa Desktop Libraries which Apple (to my knowledge) did not document. What were your thoughts on Apple's policy in this area?

THIS WAS NOT TRUE, I THINK DAN WAS MISQUOTED OR MISINTERPRETED. WE WERE DEVELOPING SOME SORT OF OBJECT ORIENTED DEVELOPMENT SYSTEM WHICH WAS DESIGNED FOR USE BY DEVELOPERS, BUT THAT WAS ALSO HARD TO GET ACROSS TO DEVELOPERS, THEY DIDN'T GET WHY THEY HAD TO LEARN A WHOLE NEW SYSTEM. I THINK IT WAS A DERIVATIVE OF CLASCAL OR SOMETHING LIKE THAT.

4) Concerning the various Lisa MRDs, how many people were involved in the writing of these? I know that the main MRD (called LISA MRD) was written by 3

people with the chief writer/architect being Trip Hawkins. I assume that each MRD was written and discussed by a small group of people (on the order of a dozen or so).

OH, LORD, THIS IS ONE OF THE HORNETS NESTS. THERE WERE A NUMBER OF MRDS, SO COUNTING WHO WAS INVOLVED WITH EACH ONE IS AN EXERCISE IN FUTILITY. I DON'T KNOW WHO DID THE ORIGINAL, I WOULD IMAGINE THAT WOULD HAVE BEEN TRIP AND CO, BUT AFTER THAT THE OTHER PRODUCT MANAGERS, NUMBERING UP TO 6-7, PROBABLY INVOLVED, WITH OTHERS SUCH AS TRAINING AND USER INTERFACE PEOPLE INVOLVED, BRINGING IT UP TO 10-12 ON EACH.

5) Concerning your earlier e-mail comment about the discussions between Apple and various companies that were interested in the Lisa, a) how many companies were interested ( I assume they were members of the fortune 500 and 1000) , b) what types of features did these companies want the Lisa to have, c) did Apple incorporate some of these desires into the Lisa's design, d) when did Apple first disclose the Lisa's development to these companies?

I CAN'T REMEMBER THE DATE DISCLOSURE BEGAN, PROBABLY A YEAR PRIOR TO FIRST SHIP. WE TARGETTED FORTUNE 500, AND DON'T KNOW THE COUNT OF HOW MANY WERE INTERESTED. ALMOST ALL OF THEM WERE "INTERESTED", BUT TO MY MIND THEY ALL GOT HUNG UP ON THE SAME THINGS:

- 1) PRICE
- 2) "NEWNESS" OF INTERFACE, MOUSE, AND DEVELOPMENT SYSTEM. ONE GUY SAID TO



ME: "WHAT'S THIS THING PROGRAMMED IN?" I SAID A DERIVATIVE OF PASCAL. HIS ANSWER: "NOTHING WHICH ISN'T DONE IN FORTRAN OR COBOL IS GOING INTO MY SHOP." VERY ENLIGHTENED. THEN THERE WAS THE MOUSE. THE ARTICLE YOU SENT HIT IT ON THE HEAD - PEOPLE FELT IT WAS A WASTE OF TIME, AND EVEN THOUGH YOU COULD SHOW THEM DRAWING CAPABILITIES THAT YOU WOULDN'T OTHERWISE HAVE, THEY FELT IT TOOK AWAY FROM THE PRODUCTIVITY OF FUNCTION KEYS AND KEYBOARD COMMANDS. THAT WAS INCREDIBLE TO ME, PEOPLE JUST DIDN'T GET IT.

AS FOR SUGGESTIONS, I DON'T RECALL ANY OF ANY MAJOR DESIGN SIGNIFICANCE BEING INCORPORATED. I BELIEVE WE DISCUSSED FUNCTION KEYS, BUT THAT DIDN'T MAKE IT.

6) How many Lisa did Apple sell? My research has indicated around 60,000-80,000. Can the Lisa serial number be used as a counter of the number of Lisas that were made? My Lisa has a serial number around 70,000.

I REALLY DON'T REMEMBER, HONESTLY. I LOST INTEREST FAST AFTER LEAVING.

7) When did you become involved with the Lisa? Were you already working for Apple when it began the Lisa project or were you hired from outside? Were you a member of Ken Rothmuller's Lisa group ca. 1979-80? I'm just curious about this.

I BECAME INVOLVED IN AUGUST, 1981. I WAS RECRUITED FROM WITHIN APPLE (ACTUALLY, I HAD POPPED OFF TO THE JUST DEMOTED PRESIDENT, MICHAEL SCOTT, IN RESPONSE TO A QUESTION HE ASKED ME, AND HE WANTED ME FIRED FOR MY RESPONSE. HR SAID HE COULDN'T DO THAT FOR ANSWERING HIS QUESTION, SO FOUND A HOME FOR ME OUT OF HIS AREA OF RESPONSIBILITY - AND THAT WAS IN LISA.) BEFORE THAT, I WAS DOING APPLICATION PROGRAMMING FOR THE SERVICE GROUP.

I have 2 other questions for you:

8) Why did Apple originally decide to develop all the software for the Lisa?

In an interview from 1986 with Dan Smith, the Desktop Manager programmer, he said that Apple made this decision when it was planning the Lisa. I assume since you were between marketing and engineering that you would know the answer to this one.

DAN IS AGAIN MISQUOTED. ALL THE ORIGINAL PRODUCTIVITY SOFTWARE WAS DONE TO DEMONSTRATE AND TEST THE INTEGRATION - THERE WAS NO OTHER WAY TO PROVE THE CONCEPT. THE THEORY WAS THAT THE APPLICATIONS WOULD THEN BE SUPPLANTED OR AUGMENTED BY THIRD PARTY SOFTWARE, ALA MACPAINT AND MACWRITE WERE FOR THE MACINTOSH. IT JUST NEVER HAD THE CHANCE. AGAIN, OUR PRIORITIES AS MARKET DEVELOPMENT PEOPLE WERE TO GET APPLICATIONS WHICH SUPPLEMENTED THOSE WE'D ALREADY DONE, THEN GO FOR THE REPLACEMENTS. JUST NEVER HAD THE TIME....

9) When did Apple decide to discontinue the Lisa? I've heard this was before

7/7 was released.

I DON'T BELIEVE IT WAS PRIOR TO 7/7, AND IF IT WAS I WASN'T AWARE OF IT. BUT I DON'T REMEMBER THE EXACT DATE.





Thanks in advance,

David

HOPE THIS HELPED, SORRY FOR DELAY. AGAIN, I THINK IT WAS PRICE AND TOO-SOON  
IN THE MARKET THAT WERE THE KEY ELEMENTS.

ANY OTHER QUESTIONS OR CLARIFICATIONS, LET ME KNOW!

— End of Document —



AL  
HOFFMAN

DAVID T. CRAIG

Lisa info

January 22, 1990

David T. Craig  
9939 Locust #4013  
Kansas City, MO 64131

Dear Mr. Craig,

Thank you very much for your letter of Nov. 11. It is always pleasant to get such feedback from one's past activities. I regret that it's taken this long to respond to your letter.

The Lisa is a wonderful machine architecture, which, alas, was simply too expensive to build in the then-available technology. Its segmented-memory architecture allowed for O.S. enhancements that are still unavailable on the Macintosh OS. I'm glad that you have an interest in this technology.

It's good to see you have written your own review of the Lisa Workshop, which, in addition to renewing some of the information from my article, contains additional details such as the assembly-language output of the Pascal compiler. (This feature was turned off to get the first release of MPW out, and has never been re-released!)

I am now a member of the "User Programming Group" at Apple (the group that includes HyperCard); I last worked on the Pascal compiler in 1986. Nevertheless, I hope I can answer or direct some of your questions. Unfortunately, however, the research time needed to locate some of the documents you seek may prohibit me from sending these along to you in the near future.

I have passed your questions and comments about the Pascal compiler on to the Pascal compiler team, so that they may either respond to you or consider your suggestions in the next release of the compiler.

Although C, and to some extent C++, have developed majority followings in the developer community in the past 4 years, Pascal remains a popular development language, with a smaller, but nonetheless persistent, user base. Also, Pascal is still the primary language for describing algorithms and their declarations, for example in *Inside Macintosh*. For these reasons I expect Pascal to be around for quite some time to come.

Some of your questions answered:

- i-code vs. p-code: The two are not directly related. Lisa Pascal originally was developed under contract to Apple by a company named SVS Inc., which, from the appearance of the code, started with some variant of Nicklaus Wirth's original P4 compiler, which generated p-code. In the Lisa Pascal compiler, all p-code generation has been removed, and the tree-like data structures that result after parsing and semantic analysis are sent to a routine called "dump" that "flattens" the trees with a preorder traversal and encodes them with a fairly high-level code known as i-code. For example, there is an i-code to represent for-statements. I-code presumably stands for "intermediate code", but the code is not like the triples or quads used as an intermediate code in standard compiler texts.
- How was the WorkShop developed? Before the WorkShop, there was another development tool used internally on the Lisa, called the Monitor. In the early days, every Lisa had an umbilical cord to an Apple II and was booted from the Apple II. The Monitor ran directly on the Lisa and was mostly assembly-language at first (I can't recall if the assembler ran on the Apple II or another machine. When the Pascal compiler became available, more code was written in Pascal). After the Monitor was running well on the Lisa, the WorkShop project was started by Barry Haynes. The WorkShop was developed on the Lisa using Monitor. Many of the development tools originally ran in Monitor and were ported over to the WorkShop.
- How many people were involved? The size of our staff is a "sensitive area", because although it may appear that Apple understaffs important projects, the company hires the best people it can find and fosters an environment in which amazing accomplishments can be secured in a fraction of the time other

companies would require. Of course, the delay in my sending this letter might hint at the intensity of our projects.

- How many lines of code? I recall that the original, pre-release Pascal compiler was about 5500 lines, but that that expanded to about 25,000 lines in the 2.0 MPW\* compiler. As for the WorkShop as a whole, I cannot recall a figure nor do I have the sources around to check. Perhaps one of those to whom I have forwarded this question will have the answer. In any case, 97% of the sources were in Pascal; the only major components in assembly were the debugger and some of the run-time library.

*\* Dec. May include the 68K code generator*

- Availability of source code: Given my familiarity with Apple operating practices, I do not believe source code can be made available for any of the WorkShop tools. One major reason is that most or all of these tools, including the ones you mention (Compare, ProcNames, DumpObj, XRef) are now selling as MPW tools. However, if as an Apple Developer you wish to negotiate for some mutually beneficial contract, please write a proposal to Mr. Jordan Mattson, MPW Product Marketing Manager, MailStop 75-8X. (I'm cringing at the number of signatures required for such a release.)

- Source code to Lisa tools: Unfortunately, I don't believe it would be easy to secure the release of source code that interfaces with the Lisa libraries. Apple would not generally release source code unless it were for a business purpose. Even if it were available, I'm afraid the complexity of the interface would render them of little value to you.

- Source code for WorkShop: This either falls into the same category as the WorkShop tools, which are still being sold in MPW, or, the category of obsolete Lisa tools, which are generally unavailable.

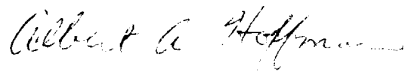
These statements are my merely my best attempts to answer your questions, and do not necessarily represent Apple's legal position on any of these matters.

I hope to be able to locate and forward along to you the documents you've requested. Some of these may be available in nearby files; others could require some research. In any case, I had best mail this letter in advance of the

documents to avoid any further delays. If you have other questions regarding the current operation of the Pascal or C compilers, please contact directly Mr. Jeff Sussna, Mailstop 22AE.

Good luck with the use of your Lisa and with your development of Macintosh software!

Yours truly,



Albert A. Hoffman

*Lisa*

Apple Lisa Computer Technical Information

*06 Aug 95  
DTC called,  
left message.*



## A Conversation with Mr. Albert Hoffman concerning Lisa Pascal

By David T. Craig - 20 January 1994

David Craig called Albert Hoffman (Cupertino, California: home phone 408-973-8348) concerning AH's involvement in the development of the Lisa Pascal compiler. DC called AH since DC wanted to learn about the development of this language and wanted to obtain answers from someone who worked on this project (DC had corresponded with AH in the past via letters around 1991). DC spoke with AH for around 30-45 minutes. What follows is a list of topics (underlined) spoken about by AH. All people names are in **bold** for easier location.

AH Early History: AH was involved with the second development phase of the UCSD Pascal system in San Diego California. When the UCSD Regents decided to sell UCSD Pascal to SoftTech around 1979 many of the UCSD developers went to ST, but AH went to Apple. AH's first Apple project was to develop Apple /// Pascal (1979-1982). Worked on Lisa Pascal (1982-1984). Worked on various language related projects from 1985-1992 including R&D work on Apple's Cray (in FORTRAN 9X) and on AppleScript.

Silicon Valley Software (SVS): Under contract by Apple to develop Lisa Pascal and bring up the first compiler (around 1983). Apple internally worked on updates from then on. When LP first delivered was in somewhat raw form, but LP did have extensions such as UNITS which were compatible with Apple ][ Pascal. **Steve Glanvilland** was the key developer of Lisa Pascal at SVS. SG was very good at writing compilers that produced optimized code.

Lisa Pascal Debugging: Produced good code, few errors. Debugged by **Rich Page** and **Chris Franklin** and **Al Hoffman**.

A Conversation with Mr. Albert Hoffman concerning Lisa Pascal (20Jan1994) 1





Apple Pascal Language Groups: Apple ][, ///, and Lisa each had a language group. Competition of a healthy nature existed between the groups with ideas migrating from one group to another since each group wanted to make their language the best.

POSD and High-Level Languages: Lisa division (Personal Office Systems) used HLL more so than Apple ][ or /// divisions. Almost all the Lisa OS and tools were in Pascal with some of the low-level OS kernel and drivers in assembly.

Early Lisa Software Mockups: Done on the Apple ][ in Apple ][ Pascal.

Lisa Workshop Utilities: AH worked on some of these.

Lisa Workshop 68000 Assembler: Developed in-house, design influenced by Apple ][ Pascal assembler.

Lisa COBOL: Contracted out.

Lisa BASIC: Unsure of origins (in-house, contracted out?). Maintained at Apple by **Mary Anne Hsing**.

*Marianne Hsiung*

Lisa Clascal: AH worked in this (implemented the object-oriented extensions during Clascal's first phase). Idea for Clascal began at Apple by the Xerox people Apple hired to work on the Lisa. Main Xerox person was **Larry Tesler**. Highlight of Clascal was **Niklaus Wirth's** visit in which NW commented upon Apple's Clascal design.

Lisa Technical Docs: Not substantial in size, mostly short memos on topics like Lisa object file format and Lisa Pascal i-code definitions.

Lisa Magical Computer Language: AH unaware of this, thinks if it existed it would have been developed by a third party under contract to Apple.

A Conversation with Mr. Albert Hoffman concerning Lisa Pascal (20Jan1994)

2



*LISA*

Useful but Forgotten Computer Features: AH has some notes on neat computer features that have not been adopted by computing industry. DC said it would be nice if AH made his notes public. AH said he would think about this.

Macintosh MPW 1.0: AH worked on this. Biggest problems were 1) Macintosh memory management (more difficult to program than Lisa's segmented memory architecture), 2) object file formats and linking. Around 30 people worked on MPW 1.0 with 3-4 at the core.

Apple II Pascal Development: **Steve Wozniak** and **Bill Atkinson** spent a lot of time at UCSD working on Apple II Pascal, were able to implement it on the II in a very short time frame.

Apple III Pascal Development: Much better machine and development environment than Apple II Pascal system.

Apple III SOS Development: Not involved with SOS development but knows about it. SOS sources originally on II, Apple moved sources to III. (?)

**End of Document**

*Misc.: Lisa Pascal based on highly modified P4 compiler (eg identifiers were different)  
Att does not work for Apple anymore. He left around 1-2 years ago.*

*Att is currently a computer consultant in Silicon Valley.*

*Att has visited New Mexico (looked at ghost towns in South NM).*

*DC gave Att the phone # of Cray Research in Santa Fe since Att seems to want permanent work.*

A Conversation with Mr. Albert Hoffman concerning Lisa Pascal (20Jan1994) 3





🍏 Apple Lisa Computer Information

# CONVERSATION WITH AL HOFFMAN

David T. Craig • 14 August 1995

DC spoke with AH concerning the Lisa computer. AH was involved in the development of the Lisa Pascal compiler. See DC's 20 Jan 94 conversation for additional info. AH joined Apple in 1979 to work on the Apple /// Pascal compiler.

## LISA

- Lisa Pascal source code lines: originally around 5,000 lines for the version Apple obtained from SVS around 1981, line count increased dramatically when source code reformatted and when new Apple-specific extensions added
- Early Lisa hardware: recalls seeing a breadboard prototype (developed under Ken Rothmuller) which contained a bit-sliced CPU, was controlled by an Apple ][, ran an early version of QuickDraw on a black/white monitor
- Lisa Pascal source code: does not have a copy of the source
- Interesting Lisa features: he may write some of these comments down (ASK FOR THIS)
- Lisa politics: much existed, thinks this topic would make a great book

## APPLE ][

- Apple ][ Pascal source code: may have a paper copy, may send me a copy (ASK FOR THIS)
- Apple ][ Pascal: derived from UCSD Pascal, but Apple made many changes

## APPLE ///

- Apple /// Pascal source code: may have a copy, but not sure if on disk or on paper, may send me a copy (ASK FOR THIS)
- Apple /// Pascal: derived from Apple ][ Pascal, at beginning of /// Pascal project the ][ and /// sources were the same but as /// project progressed the ///'s source became separate

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🍏 Apple Lisa Info • Conversation with Al Hoffman • 14 Aug 1995 • 1

- **/// SOS source: DC said has a copy, AH said interested in seeing it (SEND HIM A MAC DISK COPY)**
- **/// Word: AH believes this was the name of the very sophisticated word processor that Apple tried to make for the ///, but for political and technical reasons did not finish it, Tim O'Konsky (sp?) was head of development for this, TO is now at H-P**

## **APPLE TECHNICAL ARCHIVES**

- **Apple has a single room with all of Apple's machines (they work too!) and also contains technical materials from each project, access to room is restricted, source code kept on original disks (either floppy or hard)**
- **Archiving of sources not well managed before Lisa, but then several people in the Lisa group put together a good archiving policy**

## **MISC**

- **Bruce Daniels: recalls BD as an early manager of the Apple /// SOS team who later went to work on Lisa**
- **AH called from Texas where he is vacationing for a month or so**

**END**

🍏 Apple Lisa Computer Info

# CONVERSATION WITH KEN OKIN

David T. Craig • 09 May 1995

DC called KO at Sun Microsystems (415.786.7030). KO was Lisa hardware manager from 1981 to 1983. See DC's 06 Oct 94 letter.

KO had the following to say about the Lisa:

- Came to Apple from DEC where he worked on the DEC VAX system.
- Saw Lisa in summer of 1981 and was "blown away" by the Lisa's bitmapped graphics.
- Good areas of Lisa's design versus Macintosh's design: Lisa had slots, original Macintosh did not (Macintosh II in 1989 was 1st Mac with slots)
- Apple, as far as he knows, did not produce a Lisa with color or with a 68020 CPU, there were no plans for a Lisa 3, color monitors for 100 dpi screens in 1983 were too expensive (DC needs to check this with other Lisa people since KO may have not been involved with any Lisa advanced work - Bill Atkinson or Paul Baker may have a definitive answer to this)
- Lisa was "way ahead of its ground"
- Bill Atkinson, key Lisa user interface designer, improved upon the Lisa with his Mac work.
- People to contact who know about Lisa: **Paul Baker** (Apple), **John Fitch** (Apple), **Mike Dewey** (Apple).

NOTE:

- 27July95 DC called Baker at Apple, left message on answering machine
- 27July95 DC called Fitch at Apple, operator said Fitch does not work at Apple (try Taligent)
- **John Couch v. Steve Jobs:** Both were on an ego trip concerning Lisa (Couch won this trip in the short term, but Jobs won it in the long term)

- Lisa software: limiting factor for Lisa development.
- Twiggy: The people who designed it “screwed up”, they never built enough units to test the design fully, but eventually Twiggy worked after a major redesign of the Twiggy parts. KO setup a room full of Lisas to test the Twiggy drives for statistics since none existed. 10-40% of Twiggy drives failed before the bugs were fixed. **Jim Bean** was head of Twiggy Task Force (now lives in Idaho, contact Sun payroll dept. for his address). Twiggy problems:
  - squeaky noise: lubrication problem
  - alignment
  - media wear
- Reasons for Lisa’s demise: Fatal pricing (too expensive), marketing flaws (Apple’s marketing dept. thought Lisa would sell itself), nobody did the math on how many Lisas could be sold (KO said Apple had estimated that a single dealer could sell 100 Lisas per month)

Summary: KO was very interesting to talk to. He had lots to say and was not afraid to say it. Definitely send him a copy of my Lisa paper when complete.

END

🍏 Apple Lisa Computer Info

# CONVERSATION WITH MIKE DHUEY

03 January 1996

DC called MD at MD's home (408-996-0157) since MD was involved with the development of the Lisa hardware. MD said the following:

- Worked on a 16 color Lisa card around 1984 which produced video output to an external color monitor.
- Around 5-10 cards were produced.
- GARY BAKER (a video guy) was also involved with the color card.
- Doesn't have schematics.
- Also worked on an AppleNet card. Precursor to AppleTalk. Architecture: 1 megabit rate, discrete h/w components, based on Intel Z8530 protocol processor.
- Also worked on the Mac 512 to make it support external color.
- Currently works for Apple in its PowerPC h/w group, works under Paul Baker.
- When DC mentioned the number of Lisa people who had gone on to bigger things MD mentioned BRAD SILVERBERG who heads Microsoft's Windows 95.

DC said he would send a copy of my Lisa paper to Paul Baker so MD could see it also.

Additional questions to ask MD:

- Did the color video card plug into one of the Lisa's 3 peripheral card slots?
- Does he have any of the cards today?

END

🍏 Apple Lisa Information

# CONVERSATION WITH PAUL BAKER

03 November 1995

DC spoke with PB, a key hardware designer of the Apple Lisa computer. PB works at Apple in the PowerPC desktop development area as a manager.

phone: 408-974-5937 (Apple)  
e-mail: pbaker@applelink.apple.com

- 68020 LISA

No such machine was ever worked on.

- COLOR LISA

One color Lisa prototype was built. Supported 16 colors (4 bits per color). CPU was the 68000 Used the original Lisa QuickDraw which supported the planar color model (vs the Color QD of the Macintosh which used the RGB model). Main h/w designer was MIKE DHUEY.

- 68010 LISA

Board-level prototype created.

- LISA MMU PATENT

When asked why this was issued many years after Lisa ended, PB said it just took a long time for the patent to be processed.

END

**LISA INFO : CONVERSATION WITH PAUL BAKER : 03 NOV 1995 : 1**

🍏 Apple Lisa Computer Information

## CONVERSATION WITH GREG STIKELEATHER

David T. Craig • 10 August 1995

DC called GS at home since GS was involved with the user tests for the Apple Lisa computer.

Home phone: 415.322.4151

Home address: 1170 Fife Ave., Palo Alto, CA 94301

E-mail: stikeleather@ahasoft.com

GS had the following to say:

- ◆ Test group: GS was manager of Usability and Testing Group for POS. Ellen Nold was Manager of Training for POS, and Mary Dieli (not Diehle) was a summer intern for several months. Larry Tesler was also involved with user testing, but Tesler also had other POS responsibilities.
- ◆ Apple years: 81-83, left to work on FrameWork application (Ashton-Tate bought this eventually), worked at Go Corp, now is CEO for AHa Software in Palo Alto CA which develops software for pen-based computers that recognizes handwriting in a unique way (s/w licensed to various companies including General Magic)
- ◆ Testing room: few resources, single room, 1-way mirror.
- ◆ 30 minute learning goal: Worked on the manual Getting Started chapters whose goal was to have new users learn the fundamentals of a Lisa tool in less than 30 minutes. Goal achieved.
- ◆ Easiest tool to learn to use: LisaGraph (12 minutes for fastest person)
- ◆ Hardest tool to learn to use: LisaProject (30 mins, complicated subject matter, i.e. project management)
- ◆ User test report existence: he may have some in his garage (with his Lisa, ProFile, and ImageWriter), but he will need to look (he said he was planning to look into this stuff in a week or so)
- ◆ User test report size: varied, some were very long, others short, many were revised as testing progressed

🍏 Apple Lisa • Conversation with Greg Stikeleather • 10 Aug 1995 • 1

- ◆ test setup: small group of people were tested on a specific feature, the “Edison perspective”, tests did not last long, iterative tests
- ◆ Test subjects: mostly new Apple employees, but sometimes outside people were hired for tests from temp firms
- ◆ LisaGuide: designed by Phillis Cole, programmed by Geoff Brown
- ◆ Steve Capps and Lisa/Mac: GS said SC has said that the Mac’s technology stands on the shoulders of the Lisa (this is a reference to a famous quote about Newton and the world of physics long ago)
- ◆ Icon, Window zooming: feature that user testing originated since users were somewhat confused when a window was opened and there was not visual activity for a little while (GS said Atkinson and Tesler were involved in getting this feature working)
- ◆ Office System: 1st person to use all the OS tools concurrently, this was needed due to his testing of this s/w and for the user manuals
- ◆ Getting Started manual chapters: wrote the draft copies

**TO DO: SEND GS COPIES OF MY LISA USER TESTING MATERIALS AND ASK THE FOLLOWING QUESTIONS:**

- What lesson(s) did you learn from Lisa?
- Tesler mentions in the BYTE Lisa designer interview that there were several user tests that showed a feature’s implementation to be completely wrong and the users suggested much better ways. What features were these?
- Where did you work before Lisa? Apple? Another company? How did you become involved with Lisa?

**END**



06 Nov 94

David T. Craig

941 Calle Mejia # 509, Santa Fe, New Mexico 87501

Home (505) 820-0358 CompuServe 71533,606

MR. STEVE WOZNIAK  
UNUSON  
475 ALBERTO WAY, STE. 104  
LOS GATOS, CA 96032-5418

16400 Blackberry Hill Rd.  
Los Gatos, CA 95032

Re: Apple Lisa computer

Mr. Wozniak:

I am updating a paper I wrote in 1993 concerning the Apple Lisa computer's history and technology and was hoping that you could answer some questions for me concerning the Lisa. I assume you have limited time for "ancient" computer history, so if you do respond please take your time. A SASE is enclosed to make your reply easier.

My Lisa paper will not be published in regular magazines. I plan to upload this revision to on-line services such as CIS and AOL. I've already uploaded my original paper from Feb 93 to CIS. The update will include additional technical information about the Lisa's h/w and s/w, e.g. complete schematics in MacDraw format.

I've enclosed a copy of my original Lisa paper and a chapter from its revision which lists the people that I know of who developed the Lisa. Your feedback about any names that I've missed would be much appreciated.

The questions I have for you follow:

*Bit slice preliminary design,  
outweighed by 68000 (on-time,  
working)*

1) I've read that you were involved with the early development of the Lisa. Is this correct? If so, what aspects of the Lisa h/w did you work on? I assume you worked on the first Lisa project which Ken Rothmuller headed.

2) In your opinion, what technology was good or bad about the Lisa h/w? *Good - HW Memory Mgmt  
Multitasking considering  
Bad - Monochrome only was weak in 1983*

3) Looking back at the Lisa from a 10 year perspective, what single aspect of the Lisa do you think was significant for the microcomputer industry? *GUI feasibility*

David T. Craig

Thursday, October 20, 1994

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Good luck with your UNUSON work and thanks in advance.

Sincerely,

*David T. Craig*

David T. Craig

Encl: Lisa Retrospective paper (Feb 93)  
Lisa people names  
SASE

P.S.: My girlfriend has heard that you own several llamas. If this is true, then she was interested in knowing if they are any problem to take care of. She likes llamas very much and one day hopes to have two.

call my ex (Candi) at 408-353-3333  
(she raises lots)

Thanks for your notes. I frequently refer to many of the Mac dreams that get lost or forgotten - they obviously were the Lisa dreams. Steve Jobs spoke very negatively about the Lisa (HW) and Lisa engne, particularly the \$10K tag. In 1983, 1MB of Ram ~~was~~ retailed for \$5K. A good machine took 1MB. It was ahead of it's time for high volume pricing. (over)

David T. Craig

Thursday, October 20, 1994

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Every time the Mac gets better I remark how it's getting closer to what the Lisa was. Hard to believe that the Mac engineers loved the 32-bit 68000 but thought of 32-bits only in data register terms. 20 years before, IBM <sup>had</sup> built the most successful 360 with an instruction set forcing all programs to work in 32-bit mode only. This was a major reason for the 360 longevity and success. I don't feel that the generation younger Mac engs appreciated this.

P.S. Bill Atkinson (UCSD Pascal, Lisa, Mac, HyperCard, General Magic) is Color Blind!  
(True)

He worked for a Los Gatos photographer doing color work and the photographer never knew he was color blind either.