TITLE

Significance of 1980 Kaypros in the Evolution & Revolution of Portable Personal Computers [PPC]

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ABSTRACT

"It is difficult to know where you are going, unless you know where you have been."

In the early 1980's, only three portable personal computers [PPCs] existed: The **Kaypro and Osborne** using the CP/M operating system [the first true portable] and the **Compaq** using MS-DOS [the first MS-DOS portable].

Many of the Kaypro's innovations and features ("Compleat"{Complete} computer, affordable price, bundled home and business software, suitcase style, rugged construction, detachable keyboard, etc.) established some of the standards for PPCs.

But long term business success depends on more than a good product by an established customer oriented electronic company. Regrettably, Kaypro filed for bankruptcy in 1993, a little more than 7 years from its start. Osborne bankruptcy filing was only about 3 years after they began. Compaq continued on with an incredible long term record of successes!

Why?

ABSTRACT CORRECTION

Please note that there are some errors in the abstract **printed and online** of the **TCF program** with respect to this presentation. These errors are **corrected** in the above abstract.

This is **my fault** in submitting the original abstract and I apologize for any inconvenience it may have caused.

As far as I could determine, Osborne was **not** involved with Kaypro in making their computers.

Nor was he employed by Kaypro.

He did leave the Osborne Computer Company [OCC] **before** it filed for bankruptcy.

However, in discovering these errors, it **alerted** me to be sensitive to any references about Osborne and Kaypro.

It will be interesting to see how many people know of these errors with respect to the past history of computing, especially in our present era of so much information and misinformation.

Indeed, **there is a reference** I found that Osborne was working on a deal with Kaypro to sell software through his book publishing efforts! Very simply, there was a court case with a software developer over such types of sales and he had to stop this activity in general.

This is further explained and referenced later in this paper.

Osborne's book on hypergrowth tells **his side** of the bankruptcy of the Osborne Computer Company. It has many specific details involving the financial issues on the bankruptcy. Much to ponder here!!!

The book does intimate that although they were intense competitors, Osborne had a **high regard** for Kaypro.

If anyone has any information on any Osborne / Kaypro interaction, I would certainly appreciate it, as I am sure many others would. So we would appreciate you informing me of it. Thanks!

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HOW REFERENCES ARE NOTED / CODED:

For your convenience and for increased "readability" of this paper, the references are in the form of –

{ # - XXX}

Where –

= the number of the reference

Xxx = the code for that reference

Specifically –

WEBSITES

#-OW – OSBORNE
#-KW - KAYPRO
#-CW - COMPAQ
#-IW - IBM
#-OTW – OTHER
#-HTW – COMPUTER HISTORY & TIMELINES
#-ACW – ARTHUR CLARKE

TRADITIONAL REFERENCES

#-OT – OSBORNE
#-KT - KAYPRO
#-CT - COMPAQ
#-IT- IBM
#-AT – APPLE
#-RT – RADIO SHACK
#-OTH – OTHER

In the reference section, the references are arranged separately under the main headings of websites and traditional.

Under these main headings the references are arranged by number according to the subheadings e.g. Osborne, Kaypro, Compaq, etc.

INTRODUCTION

WHY I WROTE THIS PAPER & GAVE THIS TALK FOR 2008 TCF

Briefly and simply, because I could **not** find this information brought together anywhere else!

TCF had a presentation on vintage / antique computers last year. The TCF flea market can be even considered "**an annual ever changing display"** of many such computers!

I discovered there was **an incredible interest in vintage computers** on the internet, besides eBay!

I could **not** find much on the internet a few years ago with respect to **Kaypros.** Now there is a substantial amount.

In retirement, we are **downsizing** a great deal of the "stuff" we have accumulated in over 35 + years of marriage. **Our 6 "still working" specially modified / upgraded by me to Kaypro "8" 's are on the list, including software, many spare parts and other related items.**

It is ironic that **3 of these 6 Kaypros** [before modifications / upgrades by me] were obtained in the late 1980's **at a TCF** for very reasonable prices in the flea market!

Choices for disposal – recycling center, dumpster, "give away," or possibly eBay [to help fund some of my research work and web site].

After some investigation, eBay might be an initial first choice, since an attractive "package" of these working 6 "non-commercially available" [modified / upgraded by the **user]** special Kaypro "8" 's with other critical items might be realistic and valuable for those still very committed to Kaypros.

Obviously, keeping even one more computer from the landfill can be an admirable goal. In addition, getting it to someone, even just a hobbyist, who will cherish it and even use it, is even better!

This led to this research project and this paper and talk. It is an extension of my decades of **Science, Technology and Society** [**STS**] research.

The era of the early PPC's can provide **a very good way** of illustrating some of the very complex and dramatic effects of science and technology on society.

In addition, one of the **goals** of this research is to **better understand** **STS** so we can **better manage** it in our everyday lives.

Some interesting aspects of computing can be learned from this early era of PPC's of the 1980's that can help us **better understand** computing and **better manage** it in our everyday lives.

Hope this paper and talk are of some interest and use to you as you continue to pursue your own computer endeavors.

SIMPLIFICATION

Before we begin this quest into the early 1980's PPC era, that was **so influential and important** to the further development of computing –

"we have to set some ground rules, so we can all understand the game and play it on the same basis."

In order to progress appropriately in this exciting, but complex Science, Technology & Society [STS] computer era topic, things have to be initially **very simplified**. Complexities & many specific details can be added later, after we have comprehended the initial roadmap of the era.

"The devil or God [or both?] is in the details!"

So I have tried to provide a **reasonable balance** between too much and too little data, so that we can quickly and easily initially appreciate this topic.

COMPATIBILITY

Some may say this paper is too wordy and could be condensed to just the essence. However, this paper is destined to reach **a very large and diverse audience with vastly different backgrounds, experience, education, interests, areas of expertise, etc.**

I certainly would write this paper very differently if it was for **a group of Ph.D. organic chemists of my generation, experience, background, education, etc**. We would have much in common and a very narrow specific language upon which to communicate. Much could be left out since it would be assumed and understood. We would be **very compatible**, using a very important and critical computer term.

However, for such a wide audience, **compatibility** [understandability] is a significant issue. So in writing this paper, extra verbiage is essential in order to try to best reach such a diverse group of people. In essence, how do you find the right **"hot buttons"** of diverse individuals to get your point across?

A shotgun approach can be more effective than a rifle approach – YOU CAN HIT MORE OF THE TARGETS!

MOUNTAINTOPS

The "first pass" & "look at just the mountaintops" can result in an initial very general impression that we can build on later with much more detailed information in many meaningful ways, besides exploring other specific areas of this topic.

As in many human endeavors, there are many ways of looking at a topic and trying to determine "what really happened," especially involving the significant main characters. This is very pertinent with respect to computing with the very controversial "Osborne Effect or Myth" {21-OW} {1-OT }

In addition there will always be minor and even major discrepancies with data, interpretations and just plain opinions in such dynamic, fast moving and incredibly significant **STS** eras like computing.

One of the best ways to try to manage such situations, is to do your own research and develop your own opinions based on this research. Please share such endeavors with others so that we all can further proceed towards the "real truth" in the matter.

Please see the appendix for more information, the usual disclaimers and other obvious factors.

Also, few pictures are included in this paper since so many very good and detailed colored pictures of these types of computers are readily available on the internet from a variety of sites. This will help to keep the size of this paper within realistic and reasonable bounds, especially for publication on the TCF DIGEST CD.

Tables and charts are in the appendices in order to better keep the general flow of the article. If you need more specifics, they are delineated in these appendix items, along with a tremendous volume of additional detail from the internet.

A list of some of the more important and useful internet sites are also included in the appendices and in the reference section of this paper. These can be very profitably explored for additional aspects of this early pivotal computer era.

Note some references are not used in the text. They are still included for your convenience if you want to do your own personal research. They can save you a lot of time doing your own searches.

PERSPECTIVE & CONTEXT

We also must put the era **in perspective & context**, especially with respect to computing then and now, in order to best progress appropriately and intelligently.

Some things in the past may seem "very odd" today, but at the time, they may have been very serious efforts to explore the limits of what was then known about a technological development [e.g., evolution of the automobile, airplanes, etc.] How could people think that way, behave that way, do those things, etc.? Based on what they knew then, it may have been very rational and logical.

This is also very true in computing. What we expect of computers today was **very different** at these very early various stages of computer development.

So some aspects have to be presented in this paper for those who are not familiar with these "early oddities" of computing, so that they can have a better perspective / context, and thus appreciation of the impact of PPC on the industry, business and individuals.

It also should be noted that in 1982, Time Magazine declared "the computer" their "Man of the Year for 1981"! {4-OW} {2-HTW},

In February, Steve Jobs, Chairman of Apple since1981 appears on the Cover of Time Magazine {2-HTW},

The computer had certainly arrived **in the mainstream consciousness**, if not the everyday lives of a great number of people worldwide!

Also, sometimes we also need to be reminded of some of the most obvious and simple things in our crowded and fast paced lives today.

Certainly providing **very rugged, reliable, personal and portable computers [PPC]** at the **very beginning of the 1980's** had a tremendous impact on so much of our **personal lives**, but also the **global and beyond aspects of all our lives in general**.

Military, space, medical, exploration, education, industry, etc. [where does the list end?] use of such PPC's and even eventual much smaller and greatly more powerful computing systems, allowed many of these areas of life to expand beyond anything that could have been conceived at that time. These areas and many others were truly revolutionized and this revolution greatly changed and taxed humanity in many complex ways.

But specifically, the initial key was **"portability"** – the computer could be taken almost anywhere – including space exploration!

In many ways, it is this "portability" which will be a unifying focus in this paper.

This is very similar to the horse, public transportation, bicycle, personal car / motorcycle, water craft, air craft, space travel, etc. providing people with the means to not be localized, but to be "transportable" to wherever they wanted and needed to be.

Adam Osborne saw it more clearly than some others and **"made it happen"** on a very successful commercial scale, at least for a short time [less than 3 years] for his company and computer. ***Computing for the masses!*** **{1-OT}**

YOUR CHALLENGE

But first, "**a challenge for you"** to help you **better focus** on the many aspects of developing PPC's in the early 1980's and thus, gain a greater appreciation and understanding of the era and what it means today with respect to the computers we now use so commonly and take for granted as just essential parts of our lives.

What would you be saying about computing 25 + years from now, like we are trying to comprehend 25 + years after the Kaypro era? What will it be like then?
What will we be surprised at? What could we have anticipated? What would we have missed? Etc.

Actually, with the so rapid changes in present day computing, the time frame may be more realistically compressed to only **3 – 5 years** from today.

Some "issues" then and now – to focus on as you go thru this paper & for your future considerations, as you also evolve with computing -

Compatibility
Company stability – bankruptcy
New technology & science
"Just a better idea"
Greed – both companies & users
Humanity
Finances
Marketing
The production line
Quality control

Customer oriented
Management style
Etc.

ATTRACTION OF COMPUTERS

It is important at this stage in this paper to acknowledge that **computers are here to stay** and we have to accommodate them in our everyday lives as best we can.

At a minimum, we put up with all the disadvantages of computing, since overall, computing has some value in our lives in many ways. We just cannot easily do without them for so many tasks today.

For some, computers become something **"you get hooked on!"** You just seem to **fall in love** with what they can do and how they operate. You want to continually explore them like many other interests you have in life.

Others find the very **usefulness** of computers to be essential in their jobs and personal lives.

Some just use them **as required**, but not much more than that. Many of these are just resigned that they must use them for a very few things, but they do not like using them. They would rather not use them if they could.

A few still rebel against this technology and try to deny it as much as they can in their lives.

However, there is an incredible "tolerance" by many people for all the negative issues concerning computers. This tolerance is based on many individual factors for each person, of course. But it is remarkable that in all these years of computing, we still continue this tolerance, as the negatives seem to increase in number and complexity, using up more of our resources [e.g., time, funds, space, etc.] as we all progress in the evolution of computing in so many, if not almost all, areas of our everyday lives.

Why this almost universal acceptance?

Is it similar to **recycling** – great acceptance, but significant inconvenience. Are we getting back to the "greening of the commons" again, at least in selected areas and in very selected ways? {16-OTW}

In the early days of computing and especially the PPC era, many of those who used computers were **extremely tolerant** with what they had to **endure** to use these rather primitive systems by today's standards, but state of the art at the time, and get what

they wanted out of them. But they **persisted** and became very proficient with theses computers.

It is this background that can give much greater importance and significance to the computer developments that we take for granted more so today than then.

Maybe there is still **rational hope** for humanity continuing to survive in a world that seems to threaten such survival in so many very powerful and diverse ways, including computer use. {15-OW} {16-OW} {7-ACW}

EARLY 1980 COMPUTER OPTIONS

In the early 1980's, individuals seriously interested in computers on a personal basis had very few realistic choices.

Mainframes – large powerful computers that took up large size rooms and were very complex to operate had been in use for many years, especially by large companies. Individuals punched large numbers of their computer cards to "submit a job" to the computer and waited sometimes for hours [days?] for the output [depending on who else was using it and their priority of use], which was usually a large number of about 18" x 12" printed pages. Many times it was only 1 page indicating that there was an error in one of the computer cards submitted. So that had to be found & corrected and the whole job resubmitted. Obviously, some private individuals could have limited use of such systems, but had no hope of owning one.

The IBM website offers some information about what a basic large mainframe required for operation.

Before the 1981 debut of the IBM PC, such mainframes cost **$9 million dollars** [in today's dollars that would be about **$21 million**], required an air conditioned quarter-acre of space and 60 people to run and keep it loaded with instructions. {7-IW}

Mainframes were supplemented by **teletypes with paper tape** and **portable remote terminals [briefcase size]** to access mainframes off site using an acoustic coupler for the phone connection [you plugged the standard old type phone receiver into the coupler]. Obviously, these were slow and of limited use, but you could access a mainframe for your computer projects from a distance – you did not have to be in the actual vicinity of the mainframe.

AN IMPORTANT ASIDE – **Mainframes** - Please see Appendix for more details, if you are curious!

Desktops for offices – were another option, but mainly for larger businesses due to their high cost - **$80,000** range in today's dollars. They were **not** really portable by design and even weight – they were very heavy! However, some were called "portable" possibly to distinguish them from the mainframes.

Kits to build your own for hobbyists – "homebrews" - for a few hundred or thousand dollars, you could have your own very limited system – not what we would call real computers today. But they could be small and made very portable. Many took advantage of this option, some in desperation for any type of computer. Others for the pure joy of just being able to "play" with their own personal computer, as crude and not powerful as it was.

A wide variety of very diverse systems - all trying to be "real" computers as we know them today. Many of the web sites on vintage / old computers describe these early commercial efforts and contain some very good pictures. Some of the vintage / old computer museums have actual machines, some of them still working. Many made use of TV's for monitors, cassette tape decks for storage of information and actual computer programming by the operator to do the things the operator desired with the computer. Most did not survive for long and have long been forgotten by many.

Special cases – initial **Apple**, **IBM** & **Radio Shack** systems – but these were desktops, not true portables, of reasonable price, but still evolving into what we expect today in a real computer for individual use in education, at home and / or in a small business. More specific details on these systems will have more significance, meaning and perspective **after** the details of the first personal portable computers are explored.

More specific details of the above topics can be found in the following references -

{12-OTW} {45-OTW} – BEST AND WORST PC'S

{44-OTW} PC'S IN POP CULTURE

{{37-OTW} FLOPPY DISK CAPACITIES

{38-OTW} {39-OTW} {40-OTW} {41-OTW} {42-OTW} {43-OTW} {46-OTW}

FIRST PERSONAL COMPUTER [PC]

The original IBM PC {"personal computer"} Model 5150 of 1981 was actually a **desktop and not portable**, however it revolutionized computing and set many of the **standards.** {3-IW} {9-IW} It was the **first "real" personal computer** commercially available in quantity for small businesses and individuals some have said. It was the attempt by IBM to get into this market and they made many compromises to get "something" out rapidly.

It set the **"tone"** for the era of PPC's – this was their direct computer competitor for their market of small businesses and individuals - **it had the tremendous prestige of IBM behind it!**

It should be noted that the **immediate previous IBM computers**, that were **not** mainframes, were called "portable," but they were really only very large and heavy desktops, but they were "self contained" – monitor, keyboard, main board, storage devices, etc. were all in one case.

The costs were very high –

IBM 5100 in 1975 was $19,975 or in today's dollars $78,883
IBM 5110 in 1978 was $10,225, or in today's dollars $32,847

Well beyond what individuals could afford. Only large businesses could afford them**. [TABLE 1]**

But how could other computer companies realistically compete with it?

IBM used "off-the-shelf" parts, in order to speed its introduction. But the computer could then be easily duplicated / cloned by others. However, very simply, the **BIOS** involving the operating system was unique for it. Others could not use this specific BIOS without infringing on IBM patents. So their new computer system was protected from competitors or so they thought. {4-IW} {10-IW}

As some have said – "a hackers dream – to out fox the king of the hill IBM!"

Some specifications of this first IBM PC for comparison to the **first 3 PPC's** that came after it very simply were -

Intel 8088 processor running at 4.77 MHz
RAM 16 K
Operating system **both** IBM and CP/M
Floppy drive optional!

Instead a tape cassette was used for storage of information connecting to a port on the computer

It sold for **$3000 [**$7077 in today's dollars] – not cheap, but affordable by many small businesses and computer committed individuals.

Obviously, optional equipment and later upgrades greatly extended these initial specifications.

It was discontinued in **1987**, only **6 years** after it was introduced!

However, as of **June 2006**, many are still used in US National Weather Service to process data and are being phased out over several years. {3-IW} {9-IW} {4-IW}

It was **not** the best computer technologically, but it looked and felt like a professional computer, so it became very popular and successful – 50,000 units were sold only 8 months after its introduction. However, it was still too expensive for many homes, so it was more successful for businesses.

It was distributed by Sears and Computerland- outside third parties! This was a **master stroke** – using other established retailers to sell your low end items. Many computer companies later copied this and **by the end of the 1990's, more PC's were being sold worldwide than cars or TV's!** {4-IW}

But IBM would not come out with a PPC [portable] until 1984. {4-IW} {3-IW}

Enter the Personal Portable Computer [PPC] in the Early 1980's

These were not laptop computers!

They were very large – suitcase size and very heavy [20 – 30 pounds], hardly something you would put on your lap to use. Other descriptive terms that were used were **"transportable and luggable."** A nickname for the Compaq was **"the sewing machine" or oversized "lunchbox!"** It was very similar to portable sewing machines and lunchboxes at the time. {12-CW}

However, they were self contained **"compleat" [Kaypro's term]** / complete systems able to do almost all a small business and home user would want to do. This was a **new revelation** to past computer users. Previously, as noted above, there were no realistic "compleat / complete" computer systems for such everyday users.

The **incredible insight and genius** into human needs and wants by Adam Osborne to design and produce the first true portable computer, is a very significant achievement. {1-OT} Why did others not see this earlier?

These computers were **personal** – they were generally affordable to many small business and home users.

They were **portable** – not laptops, but suitcase like so they could be realistically and relatively easily taken on the road to be used at a wide variety of locations, not just in the office or at home.

They were **true computers**, not just calculators – which could do most of the basic common tasks computers could be used for – word processing, spreadsheets, database management, computer programming, networking thru a modem, etc. {6-OW}

They were self contained – included a monitor, keyboard, storage device – disk drive, software, etc. They were truly **completely complete** systems ready to be used by the consumer **"right out of the box!"**

Overall, they were designed well for the purpose at that time and were very practical and useful in so many ways, especially compared to what was available with respect to previous computer options, particularly for small businesses and individuals. They began many of the **standards** we expect today in personal, portable computers, including even laptops in many ways.

They were a surprising "**total new development"** for the computing community and they were quickly **embraced enthusiastically**, despite their many "growing pains!"

There was a "**special excitement in the air"** and many became devoted to them. Formal user's groups / clubs developed for each computer by each company to share information, uses, repair / maintenance, etc.

3 FIRST PLAYERS – OSBORNE, KAYPRO & COMPAQ

"The cast of characters" *to play their parts* on the PPC stage

Osborne 1 was the **first** in **1981**, initially built in an East coast plant in NJ, by a new company founded by **Adam Osborne**, a person well known in the computer industry for his technical writing of very understandable computer books. He saw the need for such a computer ahead of many others and produced a computer to admirably fill this need. {1-OT}

Kaypro II was the **second** in **1982,** built in a West coast plant in California, by a long established international electronic manufacturing company, Non-Linear Systems founded by **Andy Kay. {27-KW}**

Compaq Portable was the **third** in **1983**, built in a Texas plant, by a new company founded by **Rod Canion, Jim Harris and Bill Murto**. They left their positions as senior managers with Texas Instruments and invested $1000 **[$2400** in today's dollars] to form Compaq – the name derived from **COMPatible And Quality**. {7-CW}

Note that **IBM** did **not** come out with a **"real PPC"** until **1984,** although they called some earlier computers "portable" to distinguish them from the large stationary mainframes. These "portables" were really more like desktops as noted above.

As also noted above, IBM did have a **desktop p**ersonal **c**omputer [**PC**] in **1981, Model 5150**. It was rather limited in many ways compared to these PPC's, but it set some of the standards of the industry at that time. It was the **first real desktop** and it had the powerful IBM name behind it.

Osborne & Kaypro were **CP/M** operating systems and Compaq was IBM compatible using **MS-DOS by Microsoft, like IBM, but their own BIOS**, not IBM's BIOS, so there would be no patent infringements.

An excellent article by **Sole Libe of TCF** on the developer of the very powerful, successful and popular CP/ M and this operating system should be consulted by those

who are not familiar with it. {13-OTW} It will help you better appreciate much of this paper, since both Osborne and Kaypro stuck with CP / M too long.

SPECIFICS / SPECIFICATIONS COMPARISONS / CONTRASTS

"the hardware / machines / computers"

All three PPC's shared the same general characteristics -

Sturdy large case – suitcase style – that could even fit under the seat in an airplane! – called oversized "lunch box" or portable "sewing machine" style
Heavy – 20 – 30 pounds
Monitor
Keyboard
Disk drives for storage
Power supply
Software – Osborne & Kaypro provided a whole suite of common programs – word processing, spell check, database, spreadsheet, programming in BASIC, etc.

Compaq did **not** -it was IBM compatible, so there was a lot of software already available – they did provide Lotus Symphony a spreadsheet however, besides the usual operating manuals {2-CW}

They were really and practically "portable," [transportable / luggable], but not the laptops we know today!

What they did "not" have that we take for granted today –

Mouse – only keyboard to communicate with it

CD / DVD drive – only 2 disk drives of 191K or 320K capacity

Hard drive – so no preloaded operating system & software

No viruses! [yet! – Apple discovered 3 viruses in **1981** that came with some games that were included in their offering] {1-OTW}

Few remote bulletin boards to contact by modem [external acoustic coupler] – Only about 200 in early 1980's {{11-OW}

No real graphics or color – but Compaq did have graphics

No windows – only text on screen

You had to memorize software commands or use command lists – no pull down menus like in windows for commands

Tables 1, 2 & 3 in the appendix give specific technical comparisons and contrasts of the specifications of these first three PPC's – Osborne 1, Kaypro II and Compaq Portable.

NOTE THAT IF YOU PRINT THESE IN COLOR OR VIEW THEM ON YOUR COMPUTER SCREEN, SIGNIFICANT ITEMS ARE HIGHLIGHTED IN DIFFERENT COLORS.

Some very significant differences need to be noted:

The **price** of the Osborne & Kaypro were initially the same **[$1795**, **$4235** in today's dollars] – that was intentional by Kaypro, their major competitor

Compaq was significantly **higher** in price **[$3,590**, **$7678** in today's dollars], but it was IBM compatible – almost 100%, but not totally some found.

Only Kaypro was **not a new company**. They were established in electronics for over 30 years with an international reputation for rugged quality products.

The Kaypro had a **metal case**. This helped them not only to be rugged, but also to minimize any interference with other electrical devices [FCC concerns – e.g., Radio Shack had to eventually recall all of their TRS-80's because of such interference]. {1-RW}

There were **exposed vent holes** in the metal Kaypro case that could let things from the environment into the case [e.g., rain, snow, dust, dirt, bugs, etc.].

The Kaypro also had the keyboard, serial & parallel ports exposed on the back of the case.

However, several vinyl and nylon cases were available to put the Kaypro in to protect them from such things.

Osborne and Compaq did **not** have such exposed vent holes or ports.

Compaq did **not** include such significant software, but since it was IBM compatible, much software was available.

Osborne and Kaypro provided **extensive software** almost equal to the price of the whole system – computer + software – "bundled".

How could they do this? Osborne indicated they gave stock to the software companies and a very small fee per computer for using their software. Of course, the software companies got tremendous PR from such "packages" for other sales to customers who did not buy these computer systems. {3-OW} {1-OT}

Osborne had a very small 5" diagonal screen as opposed to the larger 9" screen. The Macintosh has a 9" screen! So this size is acceptable even today!

Osborne also did not have a detachable keyboard, but the other 2 did.

Compaq made it more difficult to lose the coiled keyboard connecting cable by making it retractable. This misplacing of this cable was a usual occurrence for many Kaypro owners!

SALES / LOSS – ULTIMATE SUCCESS / FAILURE

The small or PC computer industry, like many similar businesses, is a **very fast moving and highly competitive endeavor.**

It could be compared to a **relay race** where the participants keep handing off to their next team mate ever more improved computer models in an event that does not have a finish line, only one that continues to change and is never reached. **No one finishes**, they only eventually just drop out of the race – new ones enter – some earlier and some later than others.

It is not for the "faint hearted!" It takes a very special company and very special people to even be a significant player. This is very similar to those who go into the small farm type wineries that are so popular today especially in the USA [an area of my particular experience and expertise in dealing with them on a science & technology basis].

So how to measure success can be based on many factors – longevity, quality, profitability, etc.

As we will see, Osborne only lasted for about 3 years before bankruptcy. Kaypro lasted about 7 years. Compaq continued very successfully for many years. It fairly recently became part of HP after a very controversial and contentious "courting phase & eventual marriage ceremony!"

Financing was made possible by a relatively new rising phenomenon at that time –

venture capitalists

– willing to fund promising entrepreneurial projects at their very uncertain beginnings, with the hope of **"hitting it big"** in the long term. {22—OTW} By getting in initially "on the ground floor" very inexpensively and with the anticipated eventual great success of a project, they can see their original small investment increase astronomically!

This is a whole topic in itself, but it must be at least mentioned, since it made possible PPC's to a large extent.

1983 was a **"boom year"** for venture capital! How fortuitous for the PPC industry. {22—OTW}

However, much depended on long term **"good results"** by the PPC industry. Keeping investors happy with a continual flow of good news / PR was essential in order to maintain **confidence** in their investments. Some setbacks were expected and understood by such investors, but overall, the news had to be good!

Consumers were also targets for such good news. Their confidence in buying and using these PPC systems had to be maintained.

Overall, all 3 companies did some fine work in these areas and were very sensitive to the needs of those investing in their companies and the consumers who bought and used their products.

However, as in most human endeavors, there was some **"slippage!"** Some of which accumulated and became a **decisive factor** in the ultimate success or failure of products and companies.

Strong and charismatic, but fallible, personalities were essential in many of these endeavors. Do you really believe in "the person" behind the company?

So **public relations** became an ever more important factor in the success or failure of a product and company.

The **very controversial "Osborne Effect," "Osborne Myth," and "Osborneing"** dramatically showed how **powerful** the media had become to a corporation and how very carefully it must be cultivated, manipulated, "fed," and **managed**, like any other aspect of a business. {1-OT} {21-OTW}

Information has to be strictly controlled by the company. Secrecy has to be maintained.

It does not have to be true, even if the facts clearly prove otherwise.

People have to believe it, even if the facts are questionable.

All of this **introduction** to this PPC topic may seem **irrelevant** to many.

However, it is just not the "**hard – quantifiable"** science and technology that makes a long term successful product or company.

It is also the society – people – aspects, along with many other **"soft – qualitative"** aspects.

The above sets the **ground work – the foundation** – that the house – PPC – can be more firmly built on.

Without such a **strong and clearly explained and defined foundation**, you only tend to flounder in a very complex area with the inevitable result of confusion – lack of any possible **firm conclusions** about the topic.

It might be compared to a **"spider web"** – very delicate with each separate segment dependent on all the others and all the others dependent on that segment – to some extent - a whole that cannot ultimately exist without all of the components being fully considered in their own way.

In education theory, the basic **concrete operational level** is only seeing things in very simple and limited ways.

The higher formal operational level is seeing things in more complex and interrelated ways.

Even higher levels of understandings add more layers of complexity to the approach of topics. The higher the level of understanding, the more of a chance you have of truly grasping the essence of the issues and the realistic options for resolving these issues.

Higher levels of understanding are essential in such areas as PPC's.

A good book to further explore this complex area of STS might be on the incredible Xerox PARC – Palo Alto Research Center. {2-OTH} {16-OW}

SPECIFICS

Table 4 & Charts indicates a **"snapshot"** of the best computer sellers by category from **October 1985 to November 1986** [14 months] – the height of the frantic competition in the computer industry, especially for PPC's.

Osborne was already out of business by this time, so they were not included.

Obviously, **IBM and Apple** were **dominant** with an average of **58%** over this brief time period.

Kaypro's average was about **6%** and **Compaq's average** only **3%**

The rest, on average of about **27%**, involved a lot of other small, relatively unknown computer companies fighting for market share and survival.

So the computer industry was still in a **great state of flux** for who would stay in the race and on what basis.

In addition, there were some "softening periods" for computer demand in the 1980's, further putting pressure on especially many of these many small, relatively unknown computer companies.

Table 5 & Charts show some limited data that could be found thru much effort on the sales and loss of these 3 PPC companies. Some information also could be found about number of computers sold and computers shipped, but it is **not** enough to work with.

Sales increased for all 3 companies. However, **losses** were substantial for both Osborne and Kaypro. No data could be found for any losses by Compaq.

Osborne seemed to be recovering by the third year, **1983**, but other factors were involved that will be explored later, so they had to file for **bankruptcy**. They did recover eventually, but their time had passed.

Kaypro was getting into some serious financial trouble around **1985**, but seemed to briefly recover, but by **1989,** an astounding $19 + million **[$34 million** in today's dollars] in losses on $21 + million **[$38 million** in today's dollars] in sales, or **-89%,** forced them to declare **bankruptcy** in **1990**.

Compaq continued in their meteoric rise into the late 1980's with an **astounding $12 billion in sales in 1989 [about $28 billion in today's dollars]!**

WHY SUCCESS? WHY FAILURE?

Many complexities are involved that can be explored.

But very simply, some basic facts will be presented separately for each of these companies. You can do your own research to help convince yourself why you feel these 3 companies met their eventual fate.

People at Osborne and Kaypro were **very special people** –**highly experienced and educated** in the electronic and related industries. They were also very **highly motivated** for many personal reasons.

Adam Osborne and Andy Kay not only had **Ph.D. degrees** in technical areas, they had intensive practical experience in industries that made profitable use of such technical information in many ways. They were certainly overall **technically competent** and experienced for their ventures in this new computing industry in many ways, compared to so many others in this area.

But there are numerous other areas involved with making a company with good products successful [profitably] in the long term. They recognized this in many ways and took decisive actions to better manage them.

Could they have done better – of course.

Could others have done better, all things considered to save their companies – maybe not.

They were in **"uncharted waters"** – nobody had experienced such **"hypergrowth"** in such fast moving complex technical areas previously. Manufacturing these new portable, personal computers [PPC] quickly and in vast quantities for the incredible demands of the market at that time ,was a **new phenomenon**. Hence, Adam Osborne using the term **"hypergrowth" in his book. {1-OT}**

AN IMPORTANT ASIDE – **Entrepreneurs** - Please see Appendix for more details, if you are curious!

They did not go down easily or willingly! Many decisive, creative and extraordinary actions were taken to try to turn the tide, in the **most pure & idealistic motivations** in many cases. Some worked and some did not. Overall, in the long run**, it just was not to be.** The deck was too stacked against them in so many ways.

However, there are times "to continue to fish and there are times to just cut bait and move on." Overall, many involved finally realized this and moved on with their lives, many being very successful in other areas of life and business.

My decades of **STS** research indicates this is a **pattern** in many industries, especially those involved with highly science and technologically intensive companies. Many reasons are involved and many reasons are very specific to a particular industry. Some are under your control, but many are not. Some are just a matter of judicious timing and just plain luck – being at the right place at the right time – chance favors the prepared mind!

SPECIFICS ON

OSBORNE

The founder of the Osborne Computer Company [**OCC**], Adam Osborne, is a **fascinating and very controversial** person in many ways, as are many innovators.

You have to be **different** to see things **differently** and to capitalize on these **differences**.

> Some have called him the most charming, persuasive, egotistical, and supremely confident person in the computing field and all industry!
>
> The rise and fall was one of the most spectacular in the personal computer industry. {3-OW}

He was a member of **Mensa,** the largest, oldest and most famous society of high IQ people in the world. Some familiar names of other members of Mensa are Geena Davis, the actress, Scott Adams of the cartoon Dilbert, Marilyn vos Savant who has the highest recorded I.Q. [228] in the world and Isaac Asimov science writer. {19-OTW} {20-OTW}

He is quoted as saying –

> "I liken myself to Henry Ford and the auto industry"
>
> "I give you 90 percent of what most people need"
>
> "Adequacy can be sufficient!

In response to the conflict of people embracing and resisting computing –

> "It's going to be a combination of evolution and necessity ….. executives will discover they can't avoid using these devices – they'll just have to do it." {1-OW}

At Xerox PARC in 1980, he was dazzled by **Notetaker,** a small screen computer with a modem that could be carried between home and work. The Osborne 1 was very much like Notetaker. It was called the **"Volkswagen Beetle of computers."** {12-OW} {16-OW}

Although Osborne only lasted less than 3 years [**1981 – 1983**], they did not just make one computer and then just try to keep selling it. However, the forecast for first year sales was **10,000 units**, that many were sold in the first month! So the first Osborne was much more successful than originally anticipated. {1-OT}

Adam Osborne had hit on what the public really wanted in computers and what they were willing to pay for it!

He was even quoted as saying –

> "With bundled machines you can throw away the hardware and keep the software, and it's still a good buy." {1-OT}

Note, **"bundled machines"** included extensive software with the hardware. A big innovation for computers at that time, but common today.

Time magazine in **December 1982** listed the Osborne as one of the top selling computers, along with IBM PC, Apple II Plus, TRS-80 Model III, etc. {1-HTW}

About a year after the Osborne 1, the improved **Osborne 1a** was released.

The **1982 Osborne Executive** [Osborne 2???] had a similar case design, but had a larger 7" amber monitor and half height disk drives, but still had the CP/M operating system [v3.0].

The **1983 Osborne 3 or Encore** was developed for the PC-DOS market and thus could have the IBM compatible MS-DOS operating system. It was a much different case design.

The **Osborne 4 Vixen** was being developed when the bankruptcy was filed in **1983**. It even had a larger screen [7" not 5"], larger disk drives [400K] and even an optional 10 MB hard drive. It was a different case design, similar to the Kaypro. It could have the IBM compatible MS-DOS system. So they were not just giving up. They kept on trying!

However, by announcing this new model, it hindered the sale of the older Executive and thus impacted severely the financial bottom line, since consumers decided to wait for the new Vixen to appear which was not CP/M based, but MS-DOS and thus IBM

compatible. But this very controversial **"Osborne Effect"** of such an announcement is **much more complex** than that. In essence, Osborne said **he lied to the press**, the only time he says he did, in order to get the press off of the track that the company was already in financial trouble. He said there was a "preannouncement much earlier, but there really was not. None of the press did any "fact checking" to see if it was true. But they got off of the track of the company being in financial trouble, which it was. {1-OT}

How much difference all this made is questionable. The time period involved is **very short,** probably less than a year, and negative things were moving very fast at the company. His book gives many specific details so you can make your own conclusions. {1-OT} But others have their opinions. {21-OTW}

The bottom line was that the company was in a very serious cash flow crisis and was going out of business.

Very simply, cash on hand was only enough for weeks or months. Income was almost zero for a variety of reasons. How this happened and continued is delineated in his book, at least his side of the story.

It was all over before much was done or could have been realistically done.

Note that this Vixen computer was the model that they even tried to sell after they recovered from bankruptcy in **1985**. It was the **last** computer produced by Osborne. But very few were sold and Osborne ceased to exist as a company. {2-HTW}

In his book he notes, this was an era of "unbelievable growth!" His specific term – **"hypergrowth"** – common today [e.g., India, China, etc.], but not very common then. {35-OTW}

As far as I can determine, the founders of Kaypro and Compaq have **not** written such books on their companies.

A BRIEF TIMELINE –

Much of this is in his book and is confirmed by several websites in the reference section. Minor differences are not important. The overall flow and direction is not really contradicted. The controversy comes in concerning could anything else be realistically done to change it ,all things considered at that time? You will have to form you own opinions on this.

Also note just the **sheer volume** of manufacturing materials that had to be obtained, organized and setup on the plant floor for assembly in a very short time span. Sufficient trained labor and facilities are other issues.

LATE 1980 –

The basic design of the Osborne 1 was finished by **late 1980.** Frantic activity to build several prototypes occupied the **Winter 1980 / Spring 1981**. They were a wild success at the **May 1981** National Computer Conference.

JULY 1981 -

First shipments were in **July 1981**. In the next 8 months, 11,000 units [about 1400 / month, 50 / day, **2 / hour**] were shipped with a backlog of 50,000 more units!

However, trying to meet this incredible sudden demand, caused serious quality control issues – 10 – 15% failure rate [**10% of 11,000 units = 1100 units!!!]** costing $140,000 [$322,000 in today's dollars] to correct.

SEPTEMBER 1981

First US $1 million sales month {2-OW}

END 1981 -

First year, 1981, lost $1.2 million on sales of $5.8 million or -21% of sales [**Table 5**]. But investors felt it was to be expected and they still invested.

MARCH 1982 -

March 1982 NJ plant opened to produce **250 units / day** [= 10 / hour, **1 / 6 minutes**! – 7500 / month].

Two new computers were being developed – Vixen and Executive.

OCTOBER 1982 -

October 1982 production increased to **500 systems / day** [15,000 / month, **1 every 3-4 minutes**] to try to meet demand!

But again and as might be expected, quality control broke down and warranty issues increase enormously.

Many issues were corrected.

AUGUST 1981 & MAY 1982

But competition increased with the IBM PC in **August 1981** and Kaypro II in **May 1982**.

AUGUST 1982

First $10 million month! {1-OW} {5-OW}

NEAR END 1982 -

Near the end of 1982, **losses were eventually determined to be $8 million on sales of $66.8 million, - 12% of sales.**

EARLY 1983

Osborne publicized **new "jazzy" Osborne Executive** [$2495], which made dealers cancel orders for Osborne 1.

Please note that there is a lot of controversy over this publicizing which became to be called "the Osborne Effect" and "the Osborne Myth." {6-OW} {{23-OW}

An Executive II was also introduced. {2-OW}

FEBRUARY 1983

Best quarter ever! {5-OW} {1-OT}

JUNE 1983

Could not raise $20 million to speed its IBM compatible product.

Osborne PC – an MS-DOS clone, planned, never released, but prototypes exist. {2-OW}

JULY 1983

Prices slashed on Osborne 1 – eventually to $900 range – Adam Osborne even made personal appearances at one day sales

But they just ran out of money. {2-OW}

AUGUST 1983

NJ Plant shut down – CA facility 200 workers dismissed

SEPTEMBER 1983

Banks seize accounts receivable - CA facility closed

Suit filed for **$4.5 million** owed for PC boards

Bankruptcy filed – assets **$40 million & liabilities $45 million** – 600 creditors

Investors file suit for **$8.5 million** in damages

Osborne probably lost very little personally, since he continued to live comfortably in his CA home. {3-OW}

But he did invest substantial amounts to try to save the company. {1-OT}

Table 5 & Charts and Table 6 summarize a lot of the above data.

Certainly, you should explore his book on "hypergrowth" delineating "his side" of the story with many things to think about, many questions, many **strange actions by others**, etc. I found it very interesting and deeply thought provoking. {1-OT}

Please do your own research if you are interested further. You may come up with more interesting and incredible information!

KAYPRO

Kaypro was the only company of the 3 that was a long established and successful international electronic manufacturer. It was highly regarded for its rugged and high quality products.

The other 2 companies were **new** and were founded specifically to make their new computers.

Kaypro quickly saw that they could compete with the Osborne because of who they were, so they began with the Kaypro II in **1982**, **only a year** after Osborne started. The Kaypro II "bundled" – hardware + software - system was very similar to the Osborne 1 in many ways, so the term "knockoff" has been used. {1-OTW} More specific details on similarities and differences are denoted elsewhere in this paper.

Kaypro got off to a very initial fast and successful start their first year, like many such startup companies we see today. However, **persistence** in the marketplace over the long term ,at an acceptable profit level can be the ultimate challenge. This is particularly true in such a fast moving highly technical industry like computing.

How can you keep up?

In a new industry like PPC's there are **no "case histories"** - successful models to follow and unsuccessful models to avoid. **You are on your own!** Everything is new and untried.

In simpler times, **"seat of the pants / gut decisions / it just feels right / common sense"** could get you thru the initial startup phases in many new industries**.**

In more complex areas especially involving rapidly evolving technology, at that time and particularly today, there are many involved and interrelated areas that must be seriously considered at the same time by experts in those specific areas, as well as those responsible for the other aspects of a company – finances, production, marketing, etc.

The target seems to keep moving and you are trying to hit it in the dark!

How can a successful package be put together in order to be profitable for a sufficient time period?

Kaypro certainly tried with many new products and innovations.

They had **many obvious advantages** the other 2 companies did not have. They appeared to have **few obvious disadvantages** compared to the other 2 companies.

Table 5 & Charts and Table 7 delineate some of the specific aspects over the time frame of **about 7 years** that they were in existence and actively competing in the industry.

Each of these could be explored in great detail, but that may not be necessary to get the **general thrust / flow** of what happened.

As David Kay, the son of Andy Kay the founder of the original company NLS – Non-Linear Systems, has admitted, they were **slow** in offering an initial IBM compatible computer. {5-KT}

In such a fast moving industry like we saw with Osborne, less than 3 years in existence, **defining slow can mean only months, not years**. How do you identify an issue so fast and effectively and efficiently respond to it in such a short time frame? This can be especially critical with a very successful company just trying to maintain its present fast moving success.

However, he maintains that of the many companies in a similar situation, they were the **only ones** who successfully recovered. **Table 7** shows that they did eventually make several IBM compatible computers.

They did pick **one of the best,** if not the best at that time for their BIOS, Phoenix for their IBM compatible systems.

They and Compaq came out with the 386 systems **before** even IBM did!

They did have the usual disgruntled stockholders lawsuit, which was settled out of court for about $9.6 million.

They did have to sue their dealers for trying to sell Kaypros under the listed price.

All above referenced from {5-KT}

There must have been many other + and – factors also.

But, **Tables 7, 10 & 11 & Chart** may also show some clues as to what may have been some of the **more critical and decisive factors** about why Kaypro eventually did not make it in the long term.

Specifically, notice that in **1985**, **only 3 years** after their initial 1982 Kaypro II, they came out with a **great number** - **"6"** - of innovative, creative, different and diverse computers. They were certainly working hard to find the market and please their customers.

As noted earlier, that year, **1985**, they had a **21% loss over sales**.

But the next year, **1986**, they had **no losses** and made about **2.5 million more in sales**.

Overall, Kaypro put out a total of **15 models in 6 years 10 PPC, 4 desktops & 1 laptop – or about "2.5" per year!!!**

Osborne as we saw did a similar "hectic" announcement of a number of different computers in a very short time – **over 3 years at least 4 models – almost "1.3" / year**. [**Table 6**]

Very successful **Compaq** put out **only 10 models in 6 years - 6 portables and 4 desktops – or about "1.7" / year**. [**Table 8]**

IBM put out 6 desktops, 2 portables and 1 laptop or 9 computers in 7 years –**about "1.3" / year. [Table 9]**

So perhaps, this was a big factor in Kaypro's ultimate downfall – trying to do too much in a short period of time, especially while trying to keep a very successful business thriving and having to support all of these computer systems.

Yes, you have to keep putting out new products for your evolving customers, but at what rate?

The costs of doing all this can certainly be a factor in their substantial losses during this period. However, they did seem to begin a recovery.

But **only 4 years later**, in **1989**, they had losses that were -**89%** of their sales, after they continued many decisive actions to improve their situation.

Consequently, in **1990**, **one year later**, they filed for bankruptcy and never recovered. Osborne did recover from bankruptcy 2 years after they filed for it, but their time was over. A Swedish company did buy the brand name and still produces computers with it, but it is not the same. {10-OW}

Primo another company, tried to market Kaypros after the bankruptcy, but they were unsuccessful. {8-KW}

Andy Kay even later began a small company **Kay Computers** that still exists today, making high quality and reliable windows desktop computers for a small local market. {12-KW} Again, but it is not the same.

COMPAQ

There is probably not much to say really!

They were incredibly successful from the start and for the rest of the 1980's during the beginning evolution of PPC's and even well after this era.

The improved Compaq Portable II and III were even soon introduced after the original "I".

Compaq continued to evolve with successive incredible industry record breaking strides in many areas – financial, number units sold / shipped, new products, etc.

The many specific details of this success and that they were so successful and so fast, can be a book in itself.

What they did was successful, so it is very much out in the open for all to see.

How they did it will probably never be known due to company confidentiality and protection from the competition.

When you are **not successful** and you go into bankruptcy, a lot more company information can be released. So **what** you did, **when** you did it and **how** you did it can be scrutinized more readily. Still there can be speculation as to just how these publically known factors specifically affected the negative outcome. Naturally, there will still be some things that will not be known.

It is interesting that Adam Osborne quickly published a book about his side of the story in 1984, just a year after the bankruptcy. {1-OT} As far as I can determine, there are no such books for Kaypro and Compaq

Some references are given in the Appendix if you wish to get started on your own quest for more detailed information on Compaq and its long incredible success.

WHY THE DEMISE OF OSBORNE & KAYPRO, BUT NOT COMPAQ?

Naturally, there are many factors involved – known / unknown, preventable / inevitable, science & technology related, timing, financial, marketing, and sometimes just "luck / chance."

Who can really know?

But we can find some **facts** and can speculate intelligently about such matters in order to at least better and further understand the situation, if not the ultimate and decisive aspects of such a demise.

Overall, we can attempt to get a very general overview of some of the main factors involved. That may be enough. Too detailed analyses can obscure the main overall aspects and may not be necessary.

Documented, verified and transcribed **oral histories** of the participants, as long as they are able, can be a very important, crucial and valuable resource. Some are being preserved on various websites in the reference section. They are not verified and some are contradictory in significant ways. But that is how they remember that era and maybe from their vantage point, that is what they thought was happening.

As always, there can be "what if" speculations, but they are not as productive as dealing with the **documented and verified facts and issues of the times.**

People are important. Personalities and management styles can count for a lot.

Who knows what "special combination" of the above will or could be successful at that time under those specific conditions, circumstances, etc.?

Sometimes things just happen – good & bad – without any control, anticipation, etc.

Naturally, some of this can be due to the infamous **"Murphy's Law,"** especially in such highly technical and fast moving areas involving PPC's. {33-OTW} { 34-OTW}

Also, when strong personalities clash and there is **"much money to be made,"** the **legal system** is used to try to **"enforce"** the will of such people. So a multitude of very diverse **lawsuits** began, even before our much more litigious society of today. Alleged Infringements of patents / copyrights / contracts, etc. involving hardware / software, investor interests, dealers, personal conflicts, etc. could substantially not only be very expensive and time consuming, but also **very distracting** for the "business at hand," particularly in an era of "hypergrowth" for this new industry.

OVERALL

All 3 companies did many things right.

They all continued to release new and improved products.

They all continued on the ultimate goal of MS-DOS IBM compatible computers, with many creative, unique and innovative ideas.

They tried hard to compete effectively with the best that they had.

However, Osborne and Kaypro made some **"fatal errors"** in computer lingo, that they had difficulty recovering from.

Also, even in the best of times, could they have done much else than what they did, all things considered?

How much did simple luck and timing play in the ultimate outcome?

Both Adam Osborne and Andy Kay seemed to have adjusted to the inevitable and accepted, at least temporarily, that it was over for their companies. **However, it was**

not over for them personally! They went on to other things and had some success.

OSBORNE

First off the starting blocks is not necessarily a guarantee of long term success in a modern STS environment. As many modern business oriented publications point out, years ago, being the first could give you an unbeatable competitive edge for immediate long term survival, profitability and success.

However, in the much more complex STS environment of today, it can many times just mean that you pay the great penalty of making the big mistakes of anything that is first to be made in its category of products.

Later competitors can capitalize on correcting these mistakes **before** their product is released. "First off the block"products have to correct them **after** product release with corresponding bad PR to their reputation.

Competitors can also capitalize on the successes and new product recognition of the first released product of a competitor. They also do not have the very high investment in design, initial production, startup costs, etc. of a new product. They can "coattail" on the initial release of a competitors product and significantly improve on it for a big competitive advantage – "we are better than them because ……"

Kaypro learned from Osborne and Compaq learned from both, besides IBM.

Osborne Company fatal flaws can include the very controversial **"Osborne Effect"** – do not let customers know of a new product until you have exhausted the sales of the old product – they will just wait until the new product is available and not buy the old product, to the detriment of the bottom line in current profitability! {1-OT}

Proper and **"sufficient and timely financing"** [cash flow] is critical as is management style. That seemed to have been **one of the most significant factors**, if not **"the"** significant overall factor. If that was changed, then maybe the company could have done better. But they were basically out of cash and they did not have much if any income. Some of the main reasons for this Osborne explains in detail with financial and other records in his book. (1-OT}

So a little more cash so they could have a little more time may have been the ultimate deciding factor.

Direct competition from Kaypro was obviously a very serious concern.

Certainly, being **slow** like Kaypro to leave the old CP / M computer systems and move on to the new and more consumer acceptable IBM compatibles was also a major significant factor.

But Kaypro quickly had their serious financial concerns also. Osborne files for bankruptcy in **1983** and Kaypro has a **-21%** financial loss in **1985**, the same year Osborne briefly comes out of bankruptcy and they then go permanently out of business. Kaypro temporarily recovers but has a disastrous **-89%** financial loss in **1989**, 4 years later and files for bankruptcy the next year 1990.

So they were **both the same** in that regard – slow to go to IBM compatibles and critical financial issues.

This opened the opportunity for Compaq to do so well. They could learn from the mistakes of 2 formidable companies.

Also, the ability to do the necessary and expensive long term research and development needed to sustain current products and to bring out new products can be so challenging that few companies can do it on a long term consistent basis, in the then hectic current and even present STS environment.

Unless you have good cash flow, then such research and development is elusive.

Both Osborne and Kaypro did put out new products [probably too many for Kaypro] , but cash flow caught up with them eventually.

In the Osborne Company case, things moved very fast in a very dramatic deteriorating situation. Mistakes were made. Some very “odd” and very “untimely.” {1-OT}

But **on balance**, probably little could have been done very much better in such a short period of time, considering the many specific complex circumstances.

KAYPRO

As noted above, basically, a big factor was not managing the quickly and powerfully emerging MS-DOS IBM compatible issue well enough.

Once “behind the eight ball,” it was very difficult to “catch-up” to a powerful competitor like Compaq and eventually IBM in the PPC market.

Who could have done better under the circumstances? No one can probably, which is a satisfying answer, but not an answer that guarantees long term success.

Where there many other issues, sure. But the overriding one that could not be successfully managed, for whatever reasons, was the MS-DOS issue, along with putting out too many different products in too short a time and having to continually support them.

They had a **"low end" old CP/M image** which was reinforced by putting out another inexpensive CP/M computer in 1986, the Kaypro "1" which was in essence the same as the original Kaypro II in 1983.

Maybe this was to try to use up old parts and increase income, like the Osborne Company was trying to do, apparently, under the new Jaunich President / CEO regime. But it is more complex than that. {1-)T}

And so it goes. That is life. Accept it and move on! And they did.

COMPAQ

Very simply, long term record breaking success! Even today as part of HP in a very controversial and contentious "marriage" of the two companies a few years ago, Compaq continues to have a well deserved and earned good reputation and respect in the industry.

Great product that continually improved and evolved. Great management and technical teams. Great ideas successfully implemented.

Bumps in the road – sure. Were they stagnating towards the end? Was it just a move to "buy out" the competition by HP?

What is next for them? Only time will tell. Very complex, especially with the HP connection and dramatically further evolving of computer related products.

Stay tuned!

A couple of starting points are a book and an audio tape. {4-OTH] {5-OTH}

SOME STANDARDS / EXPECTATIONS ESTABLISHED BY PPC'S IN THE EARLY 1980'S

The great success and popularity of these early PPC's began some of the standards and expectations computer users came to take for granted. They did not have to be demanded any longer, they were just automatically assumed to be included. If they were not, a computer company was suspect. Many were very new at that time compared to other computers that were then available.

Many of these standards **carried over** into the desktop, laptop and very miniature handheld computers of today.

FULLY CONTAINED – **"CAN USE RIGHT OUT OF THE BOX"**

DISPLAY, KEYBOARD, DISK STORAGE, MAINBOARD, POWER SUPPLY WERE INCLUDED – no TV had to be used for the display, no cassette tapes for storage of information, no switches had to be turned on and off to get it to do software commands, included keyboards and cases were now standard, etc.

STANDARD BASIC SOFTWARE to do word processing, spell check, database management, spreadsheets & programming in the basic language, etc. were included in the price of the computer. – today Microsoft Works is a common software package that is included with computer systems – this can be upgraded to Microsoft Office, if required.

SOFTWARE WAS **INTEGRATED** – many of the same commands, feel & operation aspects were common to each separate function – e.g., word processing, spreadsheets, database management, etc. – this makes it easier to learn them & to more quickly use them – today the windows system with "pull down menus & commands" makes this integration even more effective and efficient.

Support for the user by the computer company was not only assumed, it took on many **new dimensions** [e.g. free phone & web support, faq's, forums, knowledge bases, swap parts overnight express, downloads, publication of issues & fixes, diagnostics & fixes with help functions, etc.] to better serve customers & as a selling point in deciding which computer system to buy – if the computer company did not adequately provide it, user groups & forums took over to "get the immediate job done," but the damage would be done & people would gravitate to other computer systems

OPTIONS AVAILABLE AT THAT TIME BECAME STANDARD –

HARD DRIVES – especially important so now operating system and software did not have to be loaded each time the computer was turned on – also much greater storage space for large files compared to disk drives at that time
INTERNAL MODEM
BATTERY POWER PACKS
INTERNAL CLOCK
GAMES!!!

OTHER TOPICS

SHOCK – WE ARE ON OUR OWN! – LATER 1980'S

In the late 1980's, It started to become very clear to the users that Kaypro was in **serious trouble** by the rise of MS-DOS and the Compaq Portable, besides IBM in general. It was undeniable. It was inevitable, but difficult to accept. Camelot was over! What an incredible era and to be part of it and to own part of it.

Although Kaypro did many things right and was very innovative and creative, it just was not enough to stem the tide. Many of these positive Kaypro initiatives are delineated elsewhere in this paper and on the internet.

As we saw earlier, Kaypro was third in the computer market for many years with 5 – 10% market share after IBM and Apple. 10,000 computers were produced / month or 120,000 / year. Each required 2 disk drives, so they were buying about 24,000 disk drives from Tandon alone per month. Other components [e.g., power supply, monitor, keyboard, mainboards, software, accessories, etc.] compounded the **physical volume** issues.

Just physically, it takes a very sophisticated company to even keep track of such huge quantities of materials, besides trying to make a profit from them.

Kaypro was a family run company that was rather loose in how it operated some have said. Many stories are noted elsewhere in this paper and on the internet.

Cutbacks on their bulletin board, magazine, etc., along with producing later models using older parts and mass liquidation of older parts at bargain basement prices, **reinforced** the undeniable fact that Kaypro was not to be a significant player in the computer world much longer.

Does this all sound very recently familiar with many companies besides those in computers?

Panic set in among their many loyal and committed customers and my wife and I were among them. How could we keep their computer systems running and try to prolong their usefulness, before the fatal and inevitable end of their practical and useful lives.

Old Kaypros were bought for parts, modifications / upgrades using other organizations [e.g., Microcornucopia, Microsphere, etc.], local private user groups, word of mouth, networking, etc. all helped to forestall the inevitable.

After all, the Kaypros were getting the job done for many years and still were, up to a point. There was some compatibility with MS-DOS and other computers [e.g., Uniform software].

But the lure of even much better computer systems and software that could do so much more, could not be resisted forever.

So how to prepare mentally, physically, time wise, hardware /software, all those past CP/M files, etc, and of course, monetarily, for the inevitable transition to IBM MS-DOS compatible systems? And of course, what specific new system to select.

INVESTMENT SALVAGE ATTEMPTS – MODIFICATIONS / UPGRADES

This was something **very new** for many at that early time of the evolution of computing , but more common today as the computer era has matured. After investing so many personal resources [e.g., funds, time, space, life style, expectations, level of performance, etc.], you had to seriously plan in the near future on replacing the Kaypros with something else.

Luckily there were companies like especially **Microcornucopia and Microsphere** that provided **upgrades / modifications** to extend the lives of the Kaypros, for awhile, before the inevitable came.

Those who were handy with their hands and had the right personal temperament and tools, etc., could perform these upgrades / modifications themselves [like the original "homebrews"] with the very excellent directions and continued friendly support these companies provided.

These modifications / upgrades were very important and significantly improved the performance of the 1983 Kaypros. Much has to do with **how** the Kaypros worked and were **actually used**, which were much different than today's computers.

Briefly, they included –

Modifications –

All **switches** – reset, on / off, dimmer - to the front panel from the back panel
General improvement of operation of system

I also added a **cooling fan and security devices of my own design**.

Upgrades –

Upgrade 1983 Kaypro **II / 2's** to 1983 Kaypro **IV / 4's** – this was required for other upgrades
Speed upgrade to **5** MHz from **2.5** MHz – **double!** - with **switch** on front panel to select
Increase number of disk drives to **4** with up to **780K** storage each for a total of about **3 MB** of storage – a huge number at that time!

External video port to use a larger monitor

There was even a **RAM upgrade to 1 MB**, again, a huge number at that time.

Please see **Tables 12, 13, 15, 16, & 17** in the Appendix for further details.

But all this is a topic for a **future paper and talk, if there is interest**. Please let me know.

My wife and I were **very heavy users** of these Kaypros for our many professional, volunteer and personal projects. So these computers were very important to us. We continue to heavily use computers in these activities, but our present computers are much more up-to-date.

Table 13 indicates the 14 computers we have owned in our 35 + years of marriage, but **25 years** of computing. How and why we evolved in our computer use in these years, is also another topic of a future paper and talk, if there is interest.

This paper and talk are already very long in trying to adequately cover this topic of the early 1980 PPC's, since the era is so complex and involved in so many different interdependent aspects.

SO NOW WHAT?

The past is the past and we can learn something from it, if we are prepared to explore it in the proper way.

So many questions – too few real answers – only intelligent choices among reasonably chosen options – for those who want to try to stay in some sort of control.

What does the present future hold for computing?

More of the same, just with different twists?

Who really knows? Who can reliably anticipate? Why even try? Who really cares? What difference will it make? It is too complex. Just let fate take its course. – **for those who do not want to or cannot try to stay in some sort of control.**

SCIENCE, TECHNOLOGY AND SOCIETY [STS] RESEARCH

But for those who want to **try to stay in control**, there is much to be specifically learned from STS research and its application in your everyday life.

My STS research indicates that there are definite repeatable **patterns** involved as science and technology dramatically affect and change the society they exist in. A **key** is to get science and technology to serve for good society / humanity rather than for bad. But specifically how?

Arthur Clarke and many others have been actively exploring this at least in many modern ways since the end of World War II in the 1940's. {7-ACW} Others have been aware of it since **Aristotle**. {16-OW}

Certainly today, we see how **complex** life is and the many **machines** sci tech provides that we must use in order to just survive, the **home personal computer** being just one of them. In some ways, we have to **"master"** so many more ever more complex and sophisticated machines for even just every day life than even a few years ago [e.g., cars, fax, cell phones, answering machines, microwaves, home theaters, electronic voting machines, etc.].

Alerting us in very understandable ways to such complex machines and sci / tech are such authors as **Tom Clancy**. {11-OT} It is interesting that his first novel, "Hunt for Red October" came out in **1984**, the time period of the PPC's this paper has explored.

But also common everyday items like our **cars** are now very complex and even computer controlled in many ways. The popular NPR radio show "Car Talk" of 2 MIT grads every week show us that even they are **stumped** sometimes about what can go wrong with our beloved automobiles. They also explain some of the complexities of repairing them – they are computer controlled and many times you even need a computer to just diagnose their problems {12-OTH}

Locally, **"Das Awkscht Fescht"** is a Pennsylvania Dutch name for one of the largest antique and classic car shows in the USA. It is staged on 42 acres in Macungie, PA in August with over 1000 cars displayed.{26-OTW} 2008 will be their 45th year.

Some may remember the days when you could just take a few simple tools and successfully diagnose and repair many car problems yourself very inexpensively.

Hence the continued interest in **old and antique cars**, as well as **old and antique computers,** like the **Kaypro!**

Some are more adept at "mastering" these many new complex machines than others, who may have to just **"hire in"** the necessary expertise, at great expense. This naturally also applies to rapidly changing computer systems – hardware, software, peripherals, etc.

One of the first strategies is to **better understand STS**. Past history can be a valuable asset in this regard. However, **education** in STS is needed to better recognize the recurring patterns, so you can more effectively and efficiently anticipate and manage STS issues better, especially in your own personal life.

Below are some initial explorations of some **specific areas** that are involved with **computing and STS,** that may be of some **practical use** in your particular situation, with respect to **managing** your computer systems in your **personal lives**.

Hopefully, this paper will get you **productively started** on this quest to master these computing STS issues, with **"some new ways of thinking and acting." It is a small start on a long and continuous journey**!

Good luck and all the best!

BRIEF SPECIFIC SUMMARY

So what have we specifically learned from all of this?

What does it mean?

How can I practically use any of it in my everyday life?

OVERALL

Naturally and ultimately, the arena of public opinion and market forces will determine, sometimes in **a very immediate, comprehensive, cruel and definitive** manner, the eternal fate of our ventures, just as it continues to in so many areas of **STS**, including computing.

This can be on the corporation level and also be on the individual personal level!

No one is immune!

But please note, that the basic and ultimate **thrust of the STS research** on this computing topic was to try to give only a very brief **"snapshot"** [the mountain tops, not the many smaller peaks and valleys] of this incredible short early period of the evolution of computing – the portable, personal computer [**PPC**] of the early 1980's.

Thru such a brief "snapshot" **much can be learned**, not only about how computing **evolved** and how we are **affected** by it today, but also how we might **anticipate** better the future and **manage** it more effectively and efficiently, for the **overall benefit of society** [humanity] and you personally.

That "snapshot" **may be enough** – an initial exploration to see if it is necessary to go further.

As noted earlier on this topic, **Adam Osborne** is quoted as saying –

"Adequacy may be sufficient!"

You do not have to have the best, the ultimate, the greatest, etc.

Just get the job done adequately at the minimal effort, so that you can survive, especially profitably.

Today we have the sci / tech to approach perfection, but is it necessary for what you really need – e.g. over engineering? Ideally, it is nice to approach perfection, practically it is much more important to approach long term survival and that depends on profitability**.**

Where and how to you "draw the line?"

Values, morals, ethics, culture, background, personality, education, experience, etc. – the "soft" aspects of STS come into play with respect to making these very personal and individual types of decisions.

There are infinite possibilities involved, both for the individuals and the desired outcomes.

YOUR SPECIFIC & PERSONAL COMPUTING NEEDS

What specific **computer functions** according to what people perceive as to what they need right now, can be enough [immediately sufficient for the present]?

To some, the term avoiding **"over engineering"** may be more helpful.

You only build into a system what is **essentially required** for the expected lifetime [present needs?] of that creation.

Certainly, if there was funded research, then much more extensive and detailed investigations could be done on this topic of PPC's. However, is that really necessary on this type of topic?

It would be nice and I certainly would enjoy it, but would it really be the best use of such available resources in this particular situation on this specific topic?

But, as a chemist, you do not have to account for every drop or molecule of water in a stream to basically know where that stream is headed.

However, the exploration of this topic has shown a lot more detail of what happened during this very brief critical era of the evolution of computing in the early 1980's concerning a very limited topic of PPC's. Hopefully, it has assisted in **better understanding** of this era and the eventual application of this increased understanding with respect to **better managing** computing today and in the future, particularly in the lives of individuals – the "personal" in PPC's.

Resources will always be limited. **Demands** [greed? – money, doing more, prestige, etc.] will always exceed these resources, but also exceed rational and realistic expectations of a particular endeavor.

As we have seen in this research, **very complex combinations of "best" options** are needed to try to **maintain** our continued progress in STS in our ever intensifying required global perspective. How this is particularly done is **very individualistic**, there is no one roadmap to guaranteed success.

Humanity is very diverse and complex. No **"one way of doing things"** can suffice for all of humanity in all situations, not even a significant segment of humanity. That can be good, since **"diversity"** is a basic and essential premise of survival. Not knowing the future, only a diverse approach to the future can help to try to best plan to survive it – maximize benefits & minimize risks - many realistic options to implement in the face of uncertainty!

Specifically, **Osborne and Kaypro** were **not** successful because they found it very difficult, in their very specific and particular situations, to properly manage this unheard of and unpredictable **"hypergrowth,"** a term Adam Osborne used. Many factors were involved, both known and not known. Maybe no one could have done better in their positions.

Other industries were in similar situations. The Tucker car and other automobile companies of the late 1940's, had many similarities to the more current computer industry of even of the 1980's. {7-OTH}, {8-OTH}, {9-OTH}

Other companies [e.g., Compaq & IBM] continued their success, at least for awhile.

They thrived, again, for awhile. Nothing is certain, nothing is forever.

Certainly the world of manufacturing and the workers who do it, have continued to become more complex, in so many diverse ways, from even just a few years ago.

An interesting book, "Working Changes And Choices," in **1981**, again our time period for PPC's, explored such changes. {10-OTH}

Today, there is much interest in "hypergrowth" with such booming countries like China and India, but also just in the "**hypergrowth computing market"** [e.g., redshift and blueshifting] {25-OTW}.

Business, like humanity in general, operates best in a "very controlled and predictable" environment.

Planning and expectations are very comfortably controlled and confidently anticipated.

But STS is **constantly and relentlessly changing** that environment, in many controversial, unpredictable and personally disturbing ways.

As the often quoted phrase notes – "the only thing constant is change!"

How best to anticipate this and best manage it?

This is a key question, with no specific and universal answers, only the traditional, diverse, unanticipated, creative and innovative basic human approach to such far reaching issues.

All of these 4 computer companies in the early 1980's PPC era had these qualities, more or less, in what they tried to do.

As noted earlier, it is like **a relay race with no finish line**. Participants just **enter and eventually drop out – no one finishes** – they just **"pass off"** to others their **batons** of better computer models. It is constant and **relentless** evolution!

Information has exploded faster than we can assimilate it and use it. Those in sci / tech industries do not even want to take time off for vacations and family time for the fear that they will miss things and be behind when they return to work.

This has reached such a crisis level that there is now a daily digest email service to keep you up to date on what has happened in the sci / tech area **in just the last 24 hours!!!** {11-OTW }

Knowing this, we can hopefully, **better plan and manage** our overall lives with respect to STS issues.

FOR YOU AS AN INDIVIDUAL

Some **key words / phrases** involving your own personal strategy can be **flexibility, individuality** [don't just follow the crowd or what the market is trying to dictate], **creativity, innovation, substituting old for new, recycling, reusing, compatibility, best use, benefit / risk analysis, sustainability, balance, do not over engineer, what is the minimum necessary, etc**.

Adam Osborne recognized this in the early 1980's – **adequate** can be sufficient!

There is even a movement to try to get the **$100 or $200 type of very simple computer** to the masses of many third world countries, to attempt to bring them closer to the rest of the world in many human activities. {10-OTW }

In these masses of untapped human resources, there must be "geniuses" just waiting to have the opportunity to blossom and substantially assist humanity in sustaining the species and even just improving life on the planet.

They do not need the best technology – computers, but just reasonable access to such systems, in order to improve their lives in incredible ways.

As noted earlier in this paper about Adam Osborne, **computers for the masses** – the Henry Ford of computing – not the best, just adequate to get the job done.

Indeed, a relatively **new theory** about how we won WW II is that the allies "just made due" with what they presently had and the Germans tried to continue perfect to the highest degree a few things in their war effort. This is part of my STS research that can be further delineated and referenced at another time.

There is **no universal game plan to try to win** [make best use of your resources for your computers to do what you have to do with them]! Everyone has to develop their own specific plan for their own unique personal situation.

Certainly **anticipating** what new things computing will offer can assist you in maximizing what you already have. This may be enough for the time being.

Keeping and using **several different era** computers, software, peripherals, etc. can still get the job done.

But few will realistically have the **necessary resources** to keep up with buying the latest computers, software and peripherals. They are nice as a prestige factor, but are they really necessary to still get the job done?

These **necessary resources** include **your own personal time** required to implement such latest new devices, not just funds. Space can also be an issue, unless you live in a very big home. Even at work, the era of "cubicles" instead of offices, has highlighted the way space is viewed by corporate managers. Indeed, **"blueshifting"** involves swapping faster processors without increasing the number of computing systems, and thus the space needed for them. {25-OTW} **"Redshirting"** requires more real estate!

You can always get more funds, space, etc., but they do not make any more **time** in our everyday lives. What are you willing to give up time wise in your personal life for more computing, which you may not really need to still get the job done?

Indeed, the consumer rebellion to the new IBM PS/2 system in 1987 showed that consumers **like to stay with the old and not just invest their resources in the new** – latest offered by the market. {12-IW} {12-IW}. **This was so dramatic, IBM never recovered!**

But the economy and market forces thrive on selling "new things! " These "new things" may not be necessary or even affordable. However, we are now starting to dramatically see that just consumer consumption of goods can have many long term complex negative results. The term "sustainability" has been used to try to direct such forces more productively for the common good.

Specific movements involve "The Tragedy of the Commons" and the Club of Rome work. {16-OW} {15-OW}.

It is interesting that a **new focus** has recently developed in the antique or collectible markets – **"reuse,"** not just for decoration {9-OW } Harry Rinker a locally famous antique appraiser and collector, noticed this new trend and provided web sites that foster **reuse and not buying new**.! It is a refreshing approach to why you should collect antiques and just collectibles.

Of course, computers fall into this area also. The incredible interest in **antique computers and keeping old computers running** is most pronounced on many internet sites and some are noted in the reference section of this paper **[Kaypros included!].**

Some of this interest is of the just **curiosity hobby nature,** but others are pursuing it to try to keep their older computer systems running longer.

This is what we were **"shocked"** to find out in the late 1980's with our Kaypro systems we invested so much in, as noted earlier in this paper. Our systems were ultimately doomed and we had to buy new ones! This was a **new concept** for many at that time.

Companies existed forever it seemed and you did not have to worry that they would not be there for you in the future.

Today, this is certainly not the case. The daily news announces another series of companies going out of business.

Locally, gigantic **Bethlehem Steel,** second largest steel company in USA**,** no longer exists as a company. {27-OW} The former extensive thriving land, buildings and facilities now looks like something out of a disaster area – vacant, dilapidated, uncontrolled vegetation growth, rusting metal equipment, etc. It was just **unconceivable** that it could not exist forever. It was so big and successful for so long.

But with computing, there is much out there today to share, hardware, software, expertise, etc. and computing and the internet makes it all **very "doable!"** If the computer company goes out of business, you can still have a reasonable chance of keeping your system running, at least for awhile, while you adjust to the eventual change to a new system.

HINTS

Some **hints** about how to go about this can be found in how my wife and I managed our 14 computers over about 25 years [**Tables 12 to 17**]. We still are both very active professionals, volunteers and hobbyists, so our computer needs may not be as representative of those who are not.

The more you can do yourself, the more you can have and the less you have to pay for it. Self sufficiency is a rising tide in our complex global environment, especially with respect to sci / tech issues, like computing.

Certainly, friends, forums, publications, user groups, Google searches and other internet resources are realistic tangible ways today to get what you need at minimum expense.

Learning yourself ["life long learning"] can be realistic, if you have the temperament for it. If you don't, then you are at a substantial disadvantage, especially if you are in a very intensive sci / tech environment.

Computer companies desire it and foster it, since it can reduce their customer support costs. We see this in the many "knowledge base" options that many companies offer. Many companies make it relatively easy for you to do it yourself – publications, manuals, parts, tech support, etc.

LESS RISK

Today, there is much less risk involved with experimenting yourself in keeping your computer systems operating the way you want for as long as possible.

Computers are now just a "commodity." They are plentiful and inexpensive, like many home appliances [e.g., toasters, coffee makers, microwaves, etc.].

If you make a serious error and "destroy" your computer system [probably very unlikely], you can quickly get a new one very inexpensively [e.g., Staples, Office Max, Office Depot, mail order, etc.].

Any repairs are now at the **modular level** – easily swap / replace ["plug and play"] subunits and not repair them. It is too expensive to repair modules, since they are so inexpensive. Careful swap / replace can be trivial with voluminous resources available.

The big expense is "trying to keep up with the Joneses!" – the latest technology which may **not** be really needed to get the job done. But that can be a qualitative / soft decision, not a quantitative / hard decision – do you really need it?

As noted earlier, the US Weather Service still uses the original IBM PC's but they are finally being phased out. {4-IW}

Going to the relatively new Microsoft Vista system can be very complex and expensive in so many ways – compatibility – forward and backward - of hardware, software, peripherals, etc., besides older files in different formats and storage systems. Some are resisting this – both individuals and companies. They still have enough computing system power to do what they must do right now. In the future, move to Vista, sure, but when and how?

DECISIONS

Eventually and inevitably, you must go forward and upgrade! But how and when? **But both are under your control**.

A popular saying of the early 1980's PPC era was –

"No simple answers, only intelligent choices!"

Reasonable and intelligent choices for you personally need to be determined.

An intelligent decision that is best for you personally is required, **balancing** both the qualitative / soft and quantitative / hard aspects. This is a decision only **you** can make.

However, computing and the internet make it **easier** to obtain the information necessary for such decisions. There is a wealth of information on consumer experiences with almost all products today by just even doing a Google search. This make s it much more difficult for inferior products to survive in today's highly competitive and information oriented market place.

PROCESS RATHER THAN JUST OPTIONS

Thus, it is the "process" of good decision making that is the key factor, rather than just listing potential options. How do you use the best process to reach the best options? Very complex and different for all, but doable, if you are sufficiently prepared.

How to get prepared? Many ways for many different people.

Certainly, computing and the internet offer fantastic ways of doing this. It is **ironic**, to save a computer, you actually use it to find the best options to keep it running longer, along with to find an eventual replacement for it! In the movie 2001, Hal is even used to shut himself down!

OVERALL

Thus, humanity may be able to control sci / tech by continuing to be creative, innovative, **"thinking out of the box",** etc. – in essence, acting human and not like a very predictable machine!"

In **Space Odyssey 2001 that Arthur Clarke** was involved in, Dave makes the **irrational** decision to return to the space craft without a helmet! Hal the computer can only think in **rational** terms and cannot foresee that Dave would do this. He feels that he has control over Dave and Dave has no other option but to die. Dave sees other options and acts upon them. He is successful and eventually deactivates Hal!

Humanity still controls the Machine!

How can you still control your machine – your computer system – keep it running as long as possible - it is just a tool – a very complex and powerful tool, but still a tool?

CONCLUSION

Do we have definitive answers? No!

But they are not expected knowing how sci / tech operates and the basic conflict of machines and humanity.

Do we have intelligent choices? Yes!

But these choices depend on you personally determining them from the information you gather for your unique situation.

We like certainty, but it becomes more elusive as sci / tech continues to evolve.

It is an inescapable fact of life in our new global and possibly "universe & beyond" environment that we must confront and deal with, if you desire to try to stay in control.

So we must develop the ability, skill, knowledge, temperament, vision, etc. to operate with a **balance** between rational / irrational, quantitative / qualitative, soft / hard, etc. processes in formulating the best decision **for us** under the present circumstances and in an environment of great uncertainty.

Success or failure? Depends on so many factors – known & unknown, just like in the PPC era of the early 1980's – Osborne & Kaypro folded, Compaq prospered & thrived – at least for awhile – IBM declined, but still existed in the PC market – at least for awhile.

Very similar to the movies 2001 and 2010 that Arthur Clarke exposed us to!

You just have to do what you intelligently and humanely determine to be the best in your particular situation and wait for the consequences.

Just like Osborne, Kaypro and Compaq!

OUR APPROACH

This can be another topic for another time, but to give you a **brief idea** of how we have tried to creatively approach this issue of using and planning for our computer resources, the following is offered.

Lois and I quickly saw that for a "happy marriage" of 2 very independent, different and active people, **separate basic computing systems were needed, although each could use all of them, if necessary**

Please see **Table 13** for specific computer details.

Desktops –

What I use – all in one room – all hardwire networked

New Vista Computer Pals – Vista -for internet use – faster more secure – to gradually begin to learn Vista and **MS Office 2007**, new HP ink jet color printer and new Brother laser B/W printer – required for new Vista system

2004 Gateway desktop – Win XP - **intermediate** between Vista and Compaq – used for my music LP to CD conversions – use 2 old Brother laser B/W printers – MS Office 2000

2002 Compaq – Win ME - I like the MS PhotoDraw for pictures, old scanner and I still have CompuServe for sentimental reasons – uses very old HP laser B/W printer – MS Office 2000.

What Lois uses – in a different room

2006 Win XP Computer Pals – uses Epson color ink jet printer – MS Office 2000

Laptops -

New Vista Computer Pals – **I use** - **MS Office 2007**

2006 Win XP Computer Pals – **Lois uses** - – MS Office 2000

Others –

Not actively used, in storage and will eventually be disposed of.

Note –

External USB hard drives are connected to these desktops and flash drives are also used for transferring files.

We do not have DSL since we live in a rural area. It may become available sometime in late 2008.

There also seem to be **compatibility issues** with CD's between the Vista, Gateway and Compaq systems. The Gateway seems to be **"the go between"** for the Vista and the Compaq.

So going back to the abstract of this paper –

Past / Future –

"It is difficult to know where you are going, unless you know where you have been"

By knowing more about the **past**, you can know better about the **future**"

The old saying – "Those who do not know history are doomed to repeat it!"

Why - Success / Failure –

In a **new industry with no past history / case studies, etc**., little can be known about what will be ultimately for the long term profitably successful or not, only experience will tell – building your own "new knowledge base" / history

This is especially critical in an era of **"hypergrowth"** which **Adam Osborne** delineates in his book as noted earlier in this paper. Even successful past strategies may not apply to such an intensive and very different environment.

Kaypro was an experienced, established electronic manufacturing company that had a very successful, creative and innovative management style, that Andy Kay developed and that Abraham Maslow even admired, as noted earlier in this paper.{12-KW} But it was **not effective** in the new environment of "hypergrowth." Even his son, David, who was in charge of marketing, noted that his Father was slow to change from their past very successful management style. {29-KW}

Compaq obviously hit upon what was required to be successful and they were extremely so, at least for awhile. But even one of the three founders, Canion was ousted in 1991 for failing to see that the market had **changed** from luxury to inexpensive mass marketed computers. {4-CW} He was not adequately adjusting fast enough to the new realities of the marketplace and consumers.

As Alan Kay [not Andy Kay of Kaypro] said so early in the computer era, **"the best way to predict the future is to invent it!"** {2-HTW}

So stay in control as best you can and be proactive and not just reactive.

And so it goes!

I hope that this research on this topic will help you, at least in some small way, to better maintain the computer systems you depend upon so much and that you have invested so much in – not only funds, **but your time & a part of your life!**

All the best!

SUPPLEMENTAL INFORMATION

FUNNY STORIES, LEGENDS, IRONIES, FOLKLORE, ETC.

As in many human endeavors, people can do and cause some of the most interesting things to happen, intentionally and by accident. In such a highly competitive industry as computing and with such "highly charged and motivated individuals," along with so much money at stake, some of the **most unusual and unexpected** "things" can happen.

I have included some of these to try to give you **a little taste of the "flavor" of the times.** What a great era to live thru – both good and bad, along with just sometimes being **"funny"** and sometimes being **very ironic**! Some may even use the term **"bizarre"** for certain events.

This is all part of the "society" aspects of my Science, Technology & Society [STS] research. **People are also a very important part of the STS mix**.

In addition, many of these items could be explored to **further better understand** what might have "really" happened during that period.

I tried to pick **a balance** of just **some** of what is available, in order to further illustrate some of the main aspects of this paper.

OSBORNE

Osborne felt he was the "Henry Ford" of the computer era – bringing computing to the people.

He said that his systems may not be the best, but they gave the people 90% of what they wanted. {1-OT}

It is believed that Adam Osborne was inspired to design, build and sell this new type of computer by his visit to Xerox PARC where he saw a design for a small portable computer that the researchers were working on {16-OW}.

Steven Jobs was inspired to develop the Macintosh by a similar visit to this research center. {16-OW}.

The year immediately after 1981 when Osborne 1 was offered for sale, there were a **dozen** hardware companies offering PPC's including Kaypro and Otrona. {13-OW}

Osborne's idea of "bundled" computers with software was a new way of selling computers. IBM refused to bundle software with their computers. Software had to be bought separately like many other items, including cables! {4-IW}

The price of the Osborne 1 was also set at $1795, since it was a price that could be used on credit cards at that time! {10-OW}

Although criticized for having a very small screen, 5", which was acceptable in other computers at that time, the Osborne 1 also had a port for **external composite video**, which allowed for a larger external monitor to be used. This can be seen at the Digibarn website. The external monitor even fit nicely on the top of the Osborne. {9-OW}

Microcornucopia even provided for an add on option to the 1983 Kaypro II /2 and IV / 4 computers that allowed for external composite video. {34-KW}

So external composite video was popular, especially for giving presentations to several people who had to read even the larger 9" screen of the Kaypro, compared to the smaller 5" screen of the Osborne.

The Osborne had the various ports on the front panel for easy access. However, some criticism was that then all those cables to the ports would cross the "fixed" not detachable keyboard.

Many laid off Osborne employees even received a free Osborne 1 with their severance packages. {6-OW}

He devised his annual **"White Elephant Award"** for significant developments in the computer field. The first one was for the **CP/M** operating system. The second one was for **marketing the Apple**. **VisiCalc** got the 1980 award. {19-OW}

There is even a tape recording of him giving the award for VisiCalc. {20-OW}

The award was an actual Zilog Z8000 Microprocessor Intel 8089 I/O Processor plug in board with the appropriate award labels on it!

The **Osborne** company recovered from bankruptcy eventually and produced the **Vixen** which could be made to run some IBM compatible software, but it was still a CP /M system. However, their time had passed and it was not successful.

The brand name was eventually sold to a **Swedish firm** that sells computers labeled as Osborne today. You can go to their web site and see them, but the verbiage is in Swedish naturally!

Osborne had a division in Germany and it sold the Osborne 08 in 1987. It was an MS-DOS machine and the case had some resemblance to the Kaypro. This date it 4 years after the bankruptcy filing in the USA - 1983. However, in the USA they recovered from bankruptcy in 1985. {1-OW}

It is **very controversial** about what just really led to the demise of Osborne computers, as it is in so many similar endeavors [e.g., the Tucker car of the late 1940's, etc.]. {17-OTW} {18-OTW}

Adam Osborne even published a book only a year after the bankruptcy telling his side of the story. {1-OT}

As may be expected in such a **"hypergrowth"** environment, selling a computer is one thing, but actually successfully **building it and shipping** to the customer can be very challenging. Osborne alludes to this on page #33 in his book {1-OT}.

Obviously, **quality control** can be a significant issue in such an environment and indeed, Osborne did have some very significant and serious quality control issues, as noted on page #37 [his sarcastic memo on quality control]. Pages #47-48 give some more details, but there are some complexities involved. You need to go to the book to better comprehend these issues, so they will **not** be presented here. However, Osborne eventually recovered mostly from these issues.

Another source gives figures of **10-15% failure rate** that cost the company **$140,000** to correct. First shipments were in July 1981 and in the next 8 months **11,000 units** [or 1375 / month or **45 / day**] were shipped with an order backlog of **50,000** more! . At one point they could produce 500 a day [20 / hour or 0.3 / minute or **1 every 3-4 minutes**]. **Pretty heady stuff! It captured the attention of the financial community**. {3-OW}

This certainly shows numerically what **"hypergrowth** can mean! Just the logistics alone of organizing the materials for such intensive production can be daunting. Kaypro would face the same situation.

Obviously, professional experienced leadership was needed, Adam Osborne knew it and started to look for it. He knew he was not trained or experienced in such matters. However, it was difficult to attract professional experienced leaders to such a new "startup" company, since the risks were so great. {1-OT}.

The very controversial but experienced person he **finally** was able to find to lead the Osborne Company as President and CEO was Robert Jaunich II. His career before and after Osborne is briefly described on the Calera Capital website. {20-OW}

Osborne resisted interfering with this new CEO even though it became clear "things were not right!" Again, you have to read his book and form your own conclusions. **It is all not clearly black and white**.

However, what is clear and black and white was that the company filed for bankruptcy, recovered, but quickly went out of business. **It was over**. Time to just move on.

The life of Adam Osborne **after** the Osborne computer is also another fascinating topic to explore. He certainly was a very extraordinary person in so many ways. He knew computing and he knew where it would go. But he would not be part of it, at least as far as the hardware aspects were concerned. His time had passed in this phase of his career and life.

But briefly, in **1984** he started Paperback Software International Ltd. to sell inexpensive software bound in paperback books. However, a lawsuit by Lotus charged that there was infringement on their copyright, so they were pulled from the shelves and Osborne resigned from the company. {**12-OW}**

In **1985** he tried to commercialize advances in fuzzy logic and neural network systems with an Indian company, but nothing came of it. **{12-OW}**

In **1992** he returned to India when his health began to fail to live with his sister, Katya.

He was born in Thailand in 1939 and grew up in southern India. He moved to England as a teenager.

His former wife, Cynthia Geddes, said that he had a series of strokes in the last decade.

He died on March 18, 2003 in Kodiakanal, India at age 64.

In addition to his first wife Geddes, he is survived by 3 children Alexandra and Paul, both of Oakland, CA, and Marc of Washington. He was divorced from his second wife, Barbara Zelnick. [{20-OW}.

"…..Osborne ….vanished from the media's radar , a lost blip in the computer revolution." {12-OW}

Dr. Adam Osborne was even a 1981 Past-Keynote Speaker at TCF! {29-OTW}

KAYPRO

ANDY KAY

Andy Kay still makes computers thru his new company Kay Computer for a small local market. Quality and reliability are stressed. Tests indicated that their computers only had less than a 1% failure rate, where the industry rate is about 28%. {12-KW}

He is in his 80's and still drives to work everyday. He needs a walker due to his arthritic hips. Andy is widowed and has 4 children. He has a general science degree from MIT and some significant industrial experience [e.g., Jet Propulsion Lab, Bendix] before starting Non-Linear Systems [NLS], which changed its name to Kaypro in **1982.** {29-KW} {6-KW}

He was credited with William Shockley, co-inventor of the transistor, with **starting the digital revolution. {28-KW}**

Andy watched his son-in-law disassemble and reassemble his computer in order to take it to work and to use it also at home. He knew there had to be a better way. So the portable, personal Kaypro computer was born! {29-KW}

200 units were sold in the first month and 600 in the second month. By 1983, 10,000 were being shipped and Kaypro was the third largest PC manufacturer in the world behind Apple and IBM! Radio Shack was selling in 1981 only about 1200 units a year. Andy felt they could take about 10% of this market [120 units / year]. What a pleasant surprise! {29-KW}

Again, very heady & fast growth! Who could resist such success? But how best to capitalize on it?

The Kay family owned about 70% of Kaypro and invested considerable funds, as much as $10 million, to try to save it. {15-KW} On paper, the family was worth as much as $300 million. {29-KW}.

His **"team approach,"** structured, but informal, was very innovative at the time at NLS and famous Abraham Maslow was very impressed by it, after spending a1982 sabbatical leave there. {12-KW}

David Kay said that Andy was not that affected by the failure of Kaypro. He just wanted to pick up and start over. Some have said they had the will to succeed – "They want to keep going." {29-KW} {15-KW}

However, the converting of the former faculty into a self storage facility was a heartbreak.

Also, Andy had to even fire his 95 year old Father as Building Maintenance Manager of the Factory and he died shortly afterwards. That is one reason Andy keeps on working.

Computers had become just **commodities** with little perceived differences in quality, since the same parts were being used. Buyers made their decisions on **style & brand name**. {29-KW}

POSITIVES

The Kaypro 2000 in 1985 was the first IBM compatible laptop. {24-KW}.

Kaypro was one of the **last** to introduce a PC compatible computer, but one of the **first** to deliver an AT compatible the **286i** ["i" for impressive?] {7-KW}. Compaq and Kaypro introduced the **386** computer in 1987, even before IBM! {6-KT} {7-KT} These were very powerful computers that could **match mainframes** of only 10 years ago at that time. {7-KT}

Kaypro did not have layers of committees, so customers could get quick service. {7-KT}

In 1986 they had 600 employees from 475 the year before, but lower than the all time high of 720. {7-KT}

Kaypro tried **many different kinds of models of computers with a great variation in hardware and software** [Table 7], apparently trying to find **their specific market niche.** You cannot fault them rationally for not giving a good effort. They did not just stick with a few models and try to force them on their customers. Some of their direct competitors [e.g., Compaq & IBM had fewer PPC and desktop models to offer, but were more successful during that time period [**Tables 10 & 11, including Charts**].

Kaypro did try to expand to Europe, probably in late 1983 or early 1984. Some computers of that era had on the back panel a **Netherlands** address on them, besides the usual Kaypro CA address.

A Kaypro brochure did have a European phone number on it.

This all seems natural since the parent company – NLS – Non-Linear Systems was a long time international electronic manufacturing organization.

I am trying to track down more of this information, especially since Osborne had a Germany Division as noted earlier.

European divisions like Osborne and Compaq had could increase sales on a worldwide basis. Some Kaypros **around 1984** include at least 2 different **Netherland addresses** {my personal research, I have one}.

In a private communication from Jorg of the Netherlands. who lives only 5 miles from one of the addresses, he says it is an office building in the business park next to the airport, but no Kaypro address. He provided some official references about the European division bankruptcy in 1998. {33 -KW} The Dutch Department of Finance indicated that Kaypro Europe filed for bankruptcy September 22, **1998**. This is **8 years after** the **USA** bankruptcy filing.

The early Kaypros had **full sized IBM Selectric style keyboards with a numeric keyboard** that made them very easy and familiar to use. {25-OTW}

The manuals were rewritten by Kaypro and the software selected to be included with the Kaypros allowed for easy development of "in-house" applications for small businesses by even inexperienced computer users. {27-KW} This could be a great savings for small companies, rather than having to hire outside expertise to develop special computer applications unique to their business.

In my computer references at the end of the Reference Section, this is a specific advantage I noted for the small farm type wineries in a presentation for the PA wine industry and an AJEV publication.

Kaypro did have 1200 independent dealers and a fleet of 62 vans across the country to provide customer support. {1-KT}

Initially, Roman numerals were used, since the very successful Apple II was in vogue, but later models reverted to Arabic numerals. {25-OTW} This, of course, contributed to the confusion about all the different models Kaypro offered [**Table 7** – 15 different basic models in 6 years or **2.5 models / year**– not counting the many other more minor variations]. In addition, it added confusion between the capital I and the Roman numeral I and number 1. {1-HTW}.

Some oral history comments are noted. {5-KW}

However, in 1987 with their Kaypro PC they even offered a 90 day warranty with respect to **IBM compatibility**. I found no other information on any other company doing this. {2-KT}

As noted earlier, Adam Osborne was even working with his arch rival Kaypro about a software deal after Osborne was out of business. {5-KT}. Adam Osborne seemed to have a respect for Kaypro. He did not believe there was any conspiracy of Kaypro against Osborne Computer Company {1-OT – page #100-1}

ARTHUR CLARKE

Kaypro was instrumental in the writing of the 1984 movie **"2010 The Year We Make Contact."** The famous science fiction author, **Arthur Clarke**, used a Kaypro to write the script in Sri Lanka and modem it to the USA. In the DVD version at the end of the movie in the special features section, a Kaypro is seen in the lower left corner of the screen and a dot matrix printer making the distinctive sounds of delivering a printout. The Kaypro looks dark, so it may have been a 1984 version, especially if it had an internal modem and not an acoustic coupler.

2010 was the **sequel** to "Space Odyssey 2001," involving a computer called "Hal."

Arthur Clarke is seen in a picture actually working at his Kaypro. {27-KW} {23-KW}

More specific details are given in a special section before the Reference section of this paper.

NEGATIVES

However, as noted earlier, even his son, head of Kaypro marketing, admitted, Andy was slow to change with the dramatic new changes in the computer manufacturing industry, compared to their previous very successful electronic manufacturing management style. As note also earlier, Adam Osborne had a similar experience. More experienced professional management was required for this "hypergrowth."

There were too many "Kays" and not enough "Pros" in the company was a catchy phrase some used. {29-KW}

The family run company in early **1984** developed a reputation for bookkeeping problems and carelessness. They had several product recalls. They had to admit embarrassing losses of millions of dollars in company parts thru theft. They were stored at company headquarters **underneath circus tents** and in trucks, since there was not enough space in warehouses. {15-KW}

Their secluded company compound near the beach was very relaxed and employees ate health food from the company cafeteria during breaks.

But this is all part of the new **"hypergrowth."** Tremendous demand was there that could not be resisted to be fulfilled! Even in **1990**, there was a $500,000 backlog of orders and new orders of $1 million! {15-KW} Orders, but not cash!

They did enter into the IBM compatible market **late**, but that was the case for CP/M also. {6-KT} But Kaypro was also the only company that made the successful transition from CP/M to IBM compatibles. The rest filed for chapter 11 bankruptcy {5-KT}

This is all in addition to **"Murphy's Law"** operating! {30-OTW} {31-OTW}

Premio bought the Kaypro name in **1999** and built modern budget [$700 - $1200] Kaypro computers to order, which even made the top 15 PC chart. But the profits were not there and they were discontinued around 2001. {8-KW}

There was an early legal dispute with the Bigboard Computer that concerned the Kaypro II main board being an unlicensed copy or clone. {27-KW}

There was a lawsuit by shareholders that was settled out of court for $9.25 million. (7-KT}

There was a 1985 lawsuit with the dealers {1-HTW}.

They had to live down their **CP/M image** in an era of IBM compatibility, especially since they even made a "new" CP/M machine in 1986. {6-KT} Was this to try to get some positive cash flow by using up some old parts? Osborne may have done the same thing {1-OT}. But that just reinforces the image of an "old style CP/M company."

Indeed, Kaypro had a "low end" image {1-KT}.

At the end of the bankruptcy proceedings the assets were sold for about $2.7 million with liabilities of about $20 million – or the usual **$0.10 on the dollar return**. {27-KW}

Non-Linear Systems still exists today, but apparently with no connection to the Kays. {32-KW}

COMPAQ

The initial design of the first Compaq portable was **sketched on a paper placemat in a Houston, TX restaurant House of Pies** by the 3 eventual founders of the company. {1-CW} {9-CW}

You can see a copy of the actual picture of this placemat and the 3 founders on the DigiBarn site. {8-CW}

The 1982 founders were Rod Canion, Jim Harris and Dick Murto, senior **Texas Instruments [TI]** senior managers who were dissatisfied with the way TI was being run.
They each invested $1000. {7-CW}

Two others were brought in on the team who were key marketing executives from the **IBM PC Group!**

If you are not familiar with TI, you may want to do a Google search on them. They were and still are a very significant force in the electronic and computer industries.

You may also want to check the "bios" of the 3 original founders of Compaq who in a way were the **"BIOS"** of the new company!

Rod Canion, after setting so many financial records for Compaq, was **dismissed** by Compaq's then Chairman, Ben Rosen, in 1991! But he continued on with a very successful career outside of Compaq. He was dismissed since he did not anticipate fast enough a change in the market from luxury to **low price mass marketing**. His replacement cut prices and increased sales so Compaq became the #1 computer maker. {4-CW}

I could not find any detailed information on the other 2 founders of Compaq.

Compaq was once the largest supplier of personal computers in the world! But, some say stagnation set in before the merger with HP. This is very understandable and expected. How long can success last?

The Compaq Portable sold **53,000 units** in the first year – 1,000 / week, 142 / day, 6 / hour or **1 / 10 minutes**.

Compaq spent **$1 million [$2.3 million** in today's dollars] to make their own BIOS so as to not to infringe on IBM patents. Phoenix Technologies was first to follow their lead and soon **"clone BIOSes"** were available from several vendors

Microsoft kept the right to license their operating system MS-DOS to other computer manufacturers.

Compaq supplied a computer with Intel's new 80386 microprocessor system **7 months before** IBM and became 386 supplier of choice, so IBM lost its image of technical leadership!

They were one of first to offer sub-$1000 PC in early 1990's In order to maintain prices, it was the first first-tier computer manufacturer to utilize CPU's from AMD & Cyrix. This drove many others out of this market, including IBM and Packard Bell.

All in {1-CW}

The first **Compaq portable** was demonstrated for sale carefully perched on a toilet in a hotel room, since that was where the only available electrical outlet was. {3-CW}

It is curious that I did not find any mention of **Compaq** sounding like **"compact."** These new PPC's certainly were **"compact"** for the times!

One model of the oversized "lunchbox" was launched with a flourish in 12 different countries world wide at the same time – **great showmanship**! {12-CW} {5-CW}

Compaq was merged with HP in the early 2000's in a very contentious long process. Its brand image seems to be not promoted as much as in the past. Even Radio Shack now sells HP and Compaq desktop computers.

I could not find more background information on the Compaq Company and the participants in that early era of PPC's. **I wonder why?** Surely, someone should have written a book on this fascinating era. Naturally, there is much about the merger of Compaq and HP.

The following are included for historical perspective. They really were not into the early 1980's personal, portable computers [PPC] era like the above 3 computers. But they were very significant and popular in their own way in this time period.

IBM

The company history dates back to 1889 and it was incorporated as IBM in 1911. {1-1IW}

IBM recently sold its PC making division to a company in China. {6-IW}

Some of the many and complex reasons for the decline of IBM in the PC market are delineated in several references. {5-IW} {12-IW}

The first IBM PC **clone** was released in 1982, only 1 year after the introduction of the first IBM **desktop** PC. {3-IW} IBM had sold 50,000 units six months after its introduction. {1-HTW} Obviously, the PC market was an attractive one for **clones.**

1982 was the year for the **first commercial mouse** for the IBM PC. {1-HTW}

For perspective**, 1984** was the year IBM introduces the first **portable** personal computer. {1-HTW}

A good summary of IBM PC models is contained in the following reference that also indicates that more PC's were sold than cars or TV's by the end of the 1990's. {4-IW} Certainly, computers have become just another commodity and home "appliance" that is taken for granted and assumed, like many other more traditional home appliance.

IBM is now pushing **mainframes** again. A new one is about $1 million dollars and can replace many servers and desktop computers for a company. {8-IW}

APPLE

Alan Kay [**not Andy** Kay of Kaypro] was quoted as saying that the new Macintosh was the first computer good enough to be criticized! {2-HTW} He joins Apple as an Apple Fellow in 1984. {1-HTW} In **1972**, he says **"The best way to predict the future is to invent it."** {2-HTW}

It is interesting that the Macintosh had a 9" monitor like the Kaypro. {5-AW}

Apple, of course, still continues in many diversified activities. {2-AW} {3-AW}

It continues to have about 10 – 20% of the personal computer market. {4-AW}

In 1981, Apple prohibited mail order sales and all sales must be face to face. Dealers were given 10 days to exit the mail order business. {2-HTW}

Apple also even prohibited the use of typewriters at their facilities!

In 1982, Apple becomes the first personal computer company to reach $1 billion in annual sales! {1-HTW}

In 1983, the 1 millionth Apple II is made. {1-HTW}

They apparently recently finally settled their differences with the music group the Beatles over the use of the term "apple." {1-AW}

Steve Jobs was so annoyed at Adam Osborne at one time, he left a phone message with his secretary calling Adam an obscene name. The secretary just did not know how to respond ! {4-OW} Of course, Osborne had been relentlessly baiting and teasing them about his new computer versus theirs.

RADIO SHACK

Radio Shack now sells HP and Compaq desktop computers. They also sell a wide variety of laptops from many manufacturers. They do **not** sell their own computers anymore.

The original TRS-80 desktop computer that was so incredibly popular, did have two suitcases that allowed it to be "transported" to other sites, but it was **not really a PPC**.

{6-RW}

TRS-80 enthusiasts should enjoy a good book describing its era. [1-RT}

It was the first "home' computer and had sales of 10,000 units in the first month alone. {6-RW}

It was called the **"Trash 80"** by some who did not have confidence in it and Radio Shack. However, it was a big seller and very successful for home and school use, especially in rural areas. Stan Veit formally of Computer Shopper gives a great deal of information on many of the Pre-IBM computers, including many good pictures. (32-OTW}

Our local Lehigh Valley Computer Group [LVCG] was founded on the great interest in the TRS-80's in our local area in many ways and had a very active and loyal following. We surprised them around 1985 when we showed up as **Kaypro users** and started our own very active subgroup. {2-RW}

Unfortunately, RF interference by these TRS-80 computers resulted in them being recalled. {1-RF} {5-RW}

OTHER

Certainly, a **very rich area for further research** relating to this early PPC era, but involving other computers that were **not** really PPC's at that time, would include:

Commodore – there is a very good book out on this company {1-OTH}
Leading Edge
Otrona
Atari
Texas Instruments

A Google search and the Wikipedia web site references give a wealth of information.

These can be further developed, if interest warrants.

SOME BRIEF OVERALL GENERAL CONCLUSIONS

So in summary, it is **ironic** that one way of looking at the present status of the outcomes of the early 1980's computer "wars" is that **Kay and Apple** are still the only "real" individual and independent manufacturing players from that era still in the present

computer market. Each has drastically changed with the continual evolution and revolution in the computer industry, especially with respect to new **STS** developments –

Science & **T**echnology discoveries, etc.

Society needs, wants, impressions, etc.

Kay competes directly with standard desktop computers specifically based on Andy Kay's long track record of price and [good value] quality [ruggedness / reliability] in a very small local market.

Apple is a lot more diverse and flashy, with a continuing very cult like loyal following,, providing computers and many products that are **not** traditional computers.

My **STS** research confirms that this can be the case with many technological developments in many other areas. There seems to be some sort of **"magic"** and / or **"fate"** that allows some companies to ultimately survive in a greatly changed form, over other companies that may have been more significant initially, but did not adapt appropriately to changing times.

That is one of the **great mysteri**es of **STS** – long term financial success for survival depends on so many factors. **Nothing can guarantee such success**. Hence the trend and books involving managing business by random acts – in the hope that at least some of the things management will do will be the right things for such success.

But at least you can be prepared by knowing a lot about **STS** and how it functions. As Pasteur said so many years ago – "Chance favors the prepared mind!"

You just have to make your own "informed" decisions and go with the flow, with the hope for the best.

You have to try to stay in control. You have to invent the future, not just be subject to it.

For those of us who **lived** this early computer era and **remember** it, this paper may have been a **happy experience of reliving** some of the era. I lived the era and thought I knew and remembered a lot. But much was new to me as I continued my research, so I tried to incorporate a lot of what I felt was significant in this paper, that I found in my investigation of this early era of computing, especially the new PPC category of computers.

For those who lived the era and **did not know** of many of these developments or did not remember them, hopefully this was also a **pleasant experience in nostalgia.**

For those who did not live the era, **you are not expected to know much of anything about these developments**. So hopefully this paper has been a valuable experience for you in learning and appreciating many of the significant details of this era and

applying them to better understanding and managing your present and future computer endeavors.

Thus, by being more informed of the past history of computing, especially the very important early 1980's of portable, personal computers [**PPC's**], you may be able to better understand and anticipate the future , so you can better manage computing and other science, technology and society [**STS**] issues in your own personal and very individual everyday lives.

Thus, reiterating the main "theme / focus" of this paper -

"Better knowing where you have been, will help you better determine where you are going."

Good luck and **may the force be with you**!

Enjoy! Life can be great – it is the only one you get, so you have to make the best of it no matter what!

Frank

APPENDICES

Some of the following information is included in order to let you know the tremendous amount of **persistence and tolerance** that Kaypro users continued to have, so that they could make use of these computer systems that they so heavily invested in and were so heavily dependent upon.

It was much different then to use a computer than today! The rewards for using such computers were great at that time, but, of course, there is no comparison with respect to how much more you can do, so much more easily, with the computers of today.

This information will also help you appreciate why any of these types of improvements in the computer system by upgrades / modifications and / or new models / versions meant so much to those in that era of computing.

Of course, you got greedy and wanted to do even more with your computer system, especially if someone else had a computer system that could! This could be a marketers dream!

MY CONTACT INFORMATION:

Frank Gadek
P.O. Box 31
Palm, PA 18070-0031

Email: FJGJR1@aol.com

My website – not up and running yet – please contact me in the near future for an update

Organization handling the eBay auction of our 6 Kaypro “8” ‘s:

Palm Business Center
Matt Kells
803 Gravel Pike
Palm, PA 18070
Phone: 215-679-4119
WWW: PALMBUSINESSCENTER.COM

COPYRIGHT CONCERNS

Please note that this paper has a **copyright designation** at under the title and at the top of each page. **This is only an attempt to protect against any unauthorized and / or inappropriate use.**

TCF can use this material any way it desires, since they gave me the great opportunity to present it. Besides, they are a great organization that should not be hindered in any way with respect to the pursuit their mission.

You are free to use anything in this paper and my talk as you see fit, but observing all normal copyright understandings [e.g., fair use], which includes giving credit to me. I would be flattered if you did use it.

If you would like to use any of this material **on a for profit commercial basis**, please contact me and we can discuss it. Again, I would be flattered!

I am most interested, especially in the tradition of scientists, of **freely exchanging information** for the ultimate benefit of all.

However, as many know, there are some who would like to take unfair advantage of this situation to the ultimate future detriment to such free exchange of information. Therefore we must protect against this as best we can.

Any funds generated by approved copyright use for profit that I would receive would be used to **further fund my STS research**.

USUAL DISCLAIMERS / CAVEATS / LIMITATIONS, ETC.

It was a real pleasure doing the research for this topic and being able to present it both orally and in hardcopy form [TCF Digest CD]. It took much more time than I had imagined, with new important information being constantly discovered.

So, as noted at the beginning of this paper, I tried to find the **best balance**, at least in my mind, concerning the selection of the information presented.

This was **unfunded research**, conducted almost **exclusively using the internet at home**. Even books and other research materials were selected, ordered and shipped thru Amazon and similar internet service organizations, so again even this could be done **at home**. Even the submission of the talk and paper could be even submitted by email. This is in dramatic contrast to not too many years ago where the trips to the libraries for long sessions of intensive and high resource consuming searching were an essential element in research. “Snail mail” had to be used for submissions.

This is one of the many benefits we enjoy today thru the incredible evolution of computing and associated “spinoffs.”

It can certainly make such research projects more efficient and effective, in a very timely manner.

Hopefully, this will foster more research into the many topics so important to the ultimate survival of humanity.

Naturally, there are limitations that must be kept in mind.

Wikipedia on the internet is certainly a "breath of fresh air" in doing such research, with all of its positives and negatives.

Naturally, all of this research is what I could readily find and use as I felt appropriate. My interpretations and use of this information is based on my own decisions using my past education, experience, etc.

I take full responsibility for it in a very honest and open way. I have no other agendas than to try to find **as much truth** in the data available as possible.

You may disagree with some of what is presented. I hope so, if it has a basis in fact and not just undocumented opinion.

I strongly encourage you to do your **own** further research and come up with your **own** possible oral and paper presentations for TCF.

That is the **essence** of science, so progress can be continually made in our quest for the "truth" of the matter.

So much to learn, so little time!

I have tried to keep my own personal beliefs, opinions, prejudices, etc. **out of this research as much as I could**, but, of course, some will perceive them by many ways that cannot be effectively disguised.

My own personal "take on the situation" can only **"cloud"** the ultimate quest for as much of the **truth** as possible, since everyone is so limited and dependent on their specific and unique background, experience, prejudices, education, employment, lifestyle, etc.

So that is why I encourage you to do your own research on this topic and to share it freely with all others. In that way, we may more closely approach and appreciate "what really happened in that era!"

Of course, please let me know of any errors and corrections of fact in this research.

Please also let me know what you come up with in your own research and particularly how it helped you in your own personal interactions with the many STS issues we all face in our every day lives!

Again – as noted in the abstract of this talk and paper -

"It is difficult to know where you are going, unless you know where you have been."

Mini Aside –

As the very proud, sarcastic and enthusiastic saying was by many in one of the major companies I worked for:

"We don't know where we are going, but we are making good time!"

PERSONAL NOTE

On a personal note, I am most interested in any **"feedback"** about this paper you would like to offer – positive, negative, neutral, other, etc. Certainly, **any documented corrections of errors** would be greatly appreciated.

Rather than a formal questionnaire and / or program to solicit such "feedback," it may be best to do it "freeform."

If you have something to say, say it!

I would greatly appreciate it and it would significantly assist in my STS research. Of course, anything offered, if it would be used in this research, would be used on an anonymous basis, if you desire it.

If you would like to dialogue about some of this, I am setting up a **simple website** where this can be done, along with sharing so much of what is known, not only about Kaypros and computing, but other related STS issues.

My specific contact information is given above at the beginning of the Appendices.

Thanks so much for your time and consideration in all of this!

Frank

ASIDES

AN IMPORTANT ASIDE – Mainframes

That is the era in the **middle 1970's** I started in computing thru a multiyear federal National Science Foundation PA statewide grant program to bring computing into academe. It is difficult to describe. If you can, just try to find someone who was in that era using mainframes and "just have a chat!"

Briefly, we would go to nearby Lehigh University to access their CDC 6400 mainframe. You would punch hundreds and even thousands of IBM computer cards with your data in a big room filled with people using the big [size of a desk] rugged punching machines – noise, little rectangles of the computer cards from the punched holes [**" not hanging, but free *chads*"**– from the punched voting cards of the Florida election results of a few years ago] flowing all around the room, discarded computer cards strewn about, etc. Sometimes the punching machines were defective and you had to quickly determine this in order to not waste a lot of your time. Usually you could find one that was not being used that was working, even though the computer center was very busy and these machines were used very heavily. Many times you just ate your lunch while you punched cards – "you did not want to have to give up your spot!"

A series of excellent pictures of the IBM 026 Printing Card Punch are available. if you are curious as to what it looked like on the outside and inside. {13-IW}.

You would then submit your computer card "deck" to a **person at a little window** of the room housing the mainframe ["input area"]. Your job could be a few inches of computer cards and someone else could have several boxes of computer cards!

You would periodically come back to the "output area" to see if your "job" had been run. This could take less than an hour, hours and even days, depending on who else was accessing the mainframe. Certain big and important jobs took precedence. They could take hours to run. The person at the window might even tell you not to come back for a certain time period, since a big job was running. Also, the mainframe broke down periodically and the timeframe for repair could be very long – hours.

Eventually, there would be a large sheet about 1 foot x 1.5 feet of white and green lined paper printout of the results of your "job" with your name on it deposited in **"the outbin.".**

If it was only one sheet, you were in trouble! There must have been **an error** [even one card with one item punched wrong on it] and your "job" had to be corrected and resubmitted.

If it was a large number of sheets, you were happy! You got "something" from the mainframe. Now to scrutinize the printout very carefully to see if that was what you wanted. If it was, you moved on to the next "job" to be submitted. If it was not, you determined what needed to be changed and resubmitted the "job."

So much effort for so little return! But the only alternative was "**doing it by hand** " and that would require considerable more effort.

Also note that all this was **not free!** Mainframes had a high cost of operation and repair. / maintenance. **Somebody had to pay for this**!

In the NSF grant, these costs were covered. But individuals had to pay a very nominal fee thru an account that was set up. The job would not run if your account was not active and had a balance in it. Obviously businesses paid a lot more to use a mainframe, so much so for some companies, that they bought their own mainframe eventually, even though they were very expensive.

In addition, by doing projects by hand, you only had **one copy**, **no duplicates, for safe storage off site for important projects.** Copy machines were just starting. **Typed mimeographed sheets** could be reproduced, but not anything not typed. If you wanted a copy of something not typed on mimeograph paper for duplication, then **photocopies** were another choice, but they were expensive.

Computing allowed for **multiple copies of results** – just run your card deck thru the mainframe as many times as you want and get as many duplicate copies of the results as you want.

I believe there was even a special card punch machine to duplicate computer card decks. Certainly fragile, clumsy and bulky paper tape could also be a way of getting duplicate copies of what you submitted and your results.

I did a big enology [winemaking] research project involving a lot of wine tasting statistical data of some experimental wine and spent several Summers at the Lehigh University Computer Center. I still have many of the boxes of punched cards, paper tape and printed output in our attic. They will be disposed of soon!

So I became intimately familiar with the issues of individuals using mainframes.

Paper tape punches, teletypes and portable modems allowed you to access the mainframe **offsite**. There were also delivery services setup so that your computer card deck could be delivered to the mainframe site, run and the printout and computer card deck returned to you. This usually took about a week or less.

In the NSF grant, I had the "exalted title" of **Computer Director** at an academic institution. Like most institutions, we were the **"first"** computer Directors, since institutions never had any computers for academic use on campus before!

Our computer center and my responsibilities consisted of a dedicated phone line to the mainframe and **one** paper tape teletype. As the years progressed, we got 2 teletypes and then I believe 1 or 2 dumb terminals.

The NSF grant ran out and the institutions had to decide what else they were going to invest.

I must say that the **students** took to computing like "a trout in the early Spring taking to bait!" There were lines to use the teletypes and paper tape. They were "hooked!" even at this very primitive state of the use of computing using mainframes on and off site. Some got impatient and even went to Lehigh University [about 15 minute drive] to submit their "jobs" using computer cards.

The **faculty**, as might be expected, were a **"hard sell!"** A few took the bait, but many just ignored computing, possibly with the hope that it would just fade away, like so many new things and they could get back to their nice comfortable schedule of routine things.

Administrators saw the need in their areas of responsibility, so institutions got their own administrative computers and / or hired out the work that had to be done by computing.

However, as might be anticipated, knowing academe, a few faculty began to be curious and with much coaxing and individual help. They started to explore computing uses in the areas of their interests. Like the students, "once hooked," they were off! Other faculty cautiously were attracted to their fellow faculty members interest in "this new computing thing" and eventually more recruits to the cause were reluctantly won.

Part of the NSF grant was our training for several Summers and for us to give computer training on campus.

It was an incredible experience in an area that was just "all new!" It took **special types of people** [**very different and entrepreneurial**] to agree to be **"in on it "**and I met some of the most fantastic people I have ever met in all my life!

An analogy might be that we were all jumping off of a cliff to an uncertain fate, but we were convinced that it was the only realistic thing to do under the circumstances.

And remember, this was use of mainframes, not what we have today or even PPC's!

That is why I thought this "aside" should be included in this paper. It relates to so many areas of PPC's.

When PPC's became a **"realistic reality"** for faculty and students, **we were in heaven!!!**

We could now do our computing work wherever we wanted – office, home, outside, on vacation / trips, etc.

Everything was now evaluated with respect to if a computer could be used to do it. Eventually thru many different routes, almost all could be **"computerized."**

The next decision was **"was it really worth it?"**

Balancing a checkbook, might not be worth it. But student grades, research projects, reports, personal finances, etc. in academe, personally and many more projects in industry, lent themselves to **quick justification** to be **"computerized."** If the information would be needed in the future, then computerization was immediately and quickly justified, even if for only **preserving extra copies** of the information that could be now relatively easily found, compared to going thru numerous filing cabinets of paper documents – **just do a search of your hard drive!**

So we were all off on an incredible journey that seems to be able to continue for ever – only increasing in overall ease, efficiency, effectiveness and productivity, at some cost naturally, but we are now fully convinced it is overall worth it in the long run!

Today, with only a few clicks on the keyboard, a few strokes of the mouse, touch screens, voice commands, etc. you can do what it might take days or weeks in the past with mainframes [e.g., statistics].

Enjoy!

AN IMPORTANT ASIDE – Entrepreneurs

Thru my many **enology** [winemaking] and other activities I have had the pleasure to meet many people who were truly very innovative and creative – **"different"** with respect to the challenges they willingly undertook and that they were successful or not at them.

They were very much like those involved with the first PPC's. So that is why I put this particular aside in this paper.

The important point in their lives was that they had the **opportunity** and they took it – for good or bad – the outcome was not obvious.

They were not foolish people. They were "calculated" and intelligent "risk takers." They knew very well what could be lost, but also what could be accomplished ["won"]. They were like Osborne, more interested in the challenge rather than the money.

Specifically, those in **the small farm type wineries**, especially on the East Coast. It all started in the late 1960's. You can do a "Google search" and get much information.

They needed technical and scientific information and training. I successfully provided it from the middle 1970's to the present, in a variety of ways. The most active period was the early 1980's, the same period for the PPC's of this paper. My wife and I even set up our own organization, **Enology Education Services**. But that is another story.

So I can appreciate probably more than many this **special entrepreneurial spirit** of these early PPC individuals who **"made it happen"** in the computer industry in the early 1980's.

The people I met were fantastic! They were really alive and so full of "vim and vigor!" They had a mission they decided on and that was to make the best wine possible in a small farm winery setting.

Just do it with what you had and could get. No fancy business stuff. "Go by the seat of your pants" in an era when you could still reasonably do this. They did and some were successful, depending on how you might want to define that term. Simply, many were successful, since they were **just happy** in what they were doing.

Naturally, some were not successful by almost any definition of success. Some tragically so in many ways – too committed to the ideal, but lacking in many areas critical to **"making it happen."**

I hope in this paper in some small way, based on my specific experiences in this area, that I have increased your appreciation and understanding of such remarkable individuals.

Probably the best and possibly the only way to really get to know such people is to work with them for a significant period of time.

So if you identify any, just try to do this and see what the experience is like.

You may not want to be an entrepreneurial person, and maybe you could never be one, but at least you will have experienced it first hand. It will be unforgettable.

My wife and I also speak from being such entrepreneurial people. More specific details on request.

Those involved with PPC in the early 1980's at Osborne, Kaypro and Compaq were of this same mold – **"doers"** in a brand new industry with no proven "roadmap" and no guarantee of success, but plenty of reasons to fail. But they did it – they were successful - some more than others and some longer than others.

But they did it and we are all ultimately better for it!

INFLATION CALCULATOR

In general, you can multiply dollars in **1981** by about **2.3** to get dollars in **2008** currency due to inflation.

Note these are only approximate, but that may be sufficient.

The following websites for "inflation calculators" were used -

www.data.bls.gov/cgi-bin/cpicalc.pl
www.westegg.com/inflation/infl.cgi

There are other such websites.

IN SINCERE AND HUMBLE MEMORY OF ARTHUR C. CLARKE

As I was finishing this paper to submit it to TCE for their 2008 CD Digest, due date 03/28/2008, word spread almost at the speed of light thru the internet from a variety of sources about the announcement of his death at 1:30 am on **03/19/2008 Sri Lanka time,** at the age of **90**.

He used the **Kaypro** a great deal and was able to write in a remote location like Sri Lanka, his adopted home, and modem to those remote others he was involved with in the making of the famous movie **"2010: The Year We Make Contact,"** which was made in **1984**. He had written a novel of the same name on which the movie was based.

In the feature section after the end of the movie on DVD, a **Kaypro** can be seen and a dot matrix printer, which was "buzzing away" printing something.

The Kaypro is **dark in color,** so it may have been a **1984 Kaypro IV [4].** Which did have an internal modem.

The lighter color **1983 Kaypro II** shown in some web page pictures did **not**. But an **external acoustic coupler** could be used for a modem connection.

Baud rates at that time were starting about **300 PBS** and quickly went up to **1200 PBS, incredibly slow by today's standards**.

It would be interesting to speculate what the cumulative **phone charges** were at that time over such long distances and at such slow modem speeds.

He also co-authored with Stanley Kubrick the previous famous movie **"Space Odyssey 2001," which was released in April 1968,** well ahead of the PPC era of the early 1980's and indeed, the personal computing era that we now know.

2010 was the sequel movie to 2001.

The 1960's were mainly still the era of mainframes.

For those who do not know, this movie involves the computer **Hall 9000 that sees and talks**. This series of computers have **never made a mistake!**

What a vision to anticipate at that time in the 1960's what computers would actually be like in the future – today 2008!

Both movies are available on Amazon for about $20 for 2001 [made in 1968] and $50 for 2010 [made in 1984]. I got my copy of 2010 at WWW.SWAPADVD.COM as a club member for about $5 and 2001 at Amazon.

On Amazon, **2001** is rated **4 out of 5 stars by 853** customer reviews. **2010** is rated **3.5 stars out of 5 by 172** customer reviews.

Internet movie database [IMDB] had user ratings of:

2001 - 8.4 / 10 of 109,998 votes & of top 250 rated #79.

it even won an Oscar!

2010 – 6.5 / 10 of 12,282 votes

nominated for 5 Oscars

This site also offers many photos from these movies.

A **picture** of him at a light color clearly marked **Kaypro** II can be seen at **HTTP://OLDCOMPUTERS.NET/KAYPROII.HTML** [note **.net** and not .com, another similar site] it looks like a **1983 Kaypro II,** since it is **light in color**. A light color phone is perched on top of the Kaypro and what looks like a thin printer is in the background.

The Kaypro is resting on the back of the keyboard, so it may have been a very early model of the 1983 Kaypro II, before they included the wire flip up stand underneath the Kaypro. My early Kaypro II's with no such flip up stand are in the serial number range of about 30,000 to 50,000. But his desk is not very wide, so it may be propped up to save space.

It certainly does **not** look very comfortable for long computer sessions, especially for such a famous and prolific science fiction author.

It looks like a phone line coming out from the back on the left side and some sort of black box at the left – acoustic coupler modem?

So the Kaypro was a **significant factor** in at least the 2010 movie, but if he used it for that, he must have been using a Kaypro in his many other writings during that time period.

If you are interested, do a Google search and you will certainly find a great deal more information on this famous science fiction writer, among his many other fantastic achievements.

It is interesting to note that the posting of an Associated Press article by Ravi Nessman on AOL on **3/18/2008 about 6 pm** [note time difference with Sri Lanka – but how appropriate in a way!] Generated so many quick responses –

I was first made aware of his death at **6:48 pm 03/18/2008** email from a site that I am on that keeps members informed of significant computing issues

AOL by about **8 pm 03/18/2008** had already **72 postings** as comments on his death.

Much of this communication naturally used **satellite communications**, which was originally his idea, that many found too far fetched at the time 1945. The orbits these satellites follow are called **"Clarke Orbits!"**

He probably would have appreciated all this!

Also note that he died just **about** [because of time zone differences] 18 days short of the **40th anniversary** of the release of 2001 on April 6, 1968. 2010 was released December 7, 1984 [December 7th and 1984 – hmmm]!!!

Today, only less than 2 years [21 months] to 2010!

Any significance to about all these numbers???

Is the Monolith at work here? There will be many who will speculate about all of this.

Arthur Clarke has done well to get us to think differently than we normally would!

Kaypro even gave Clarke a free Kaypro! There was much involved with all this that David Rothman describes at this website which refers to his book "The Silicon Jungle." Fascinating!!!

SOME REFERENCES –

{1-ACW} WWW.IMDB.COM/TITLE/TT0062622/ AND ALSO TTOO86837/
{2-ACW} WWW.AMAZON.COM
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{9-ACW} WWWFORTUNECITY.COM/MARIEA/REACH/435/KPRO10.HTM HAS PICTURE OF HIM WITH KAYPRO

REFERENCES

HOW REFERENCES ARE NOTED / CODED:

For your convenience and for increased "readability" of this paper, the references are in the form of –

{ # - XXX}

Where –

= the number of the reference

Xxx = the code for that reference

Specifically –

WEBSITES

#-OW – OSBORNE
#-KW - KAYPRO
#-CW - COMPAQ
#-IW – IBM
#-AW – APPLE
#-RW – RADIO SHACK
#-OTW – OTHER
#-HTW – COMPUTER HISTORY & TIMELINES
#-ACW – ARTHUR CLARKE

TRADITIONAL REFERENCES

#-OT – OSBORNE
#-KT - KAYPRO
#-CT - COMPAQ
#-IT- IBM
#-AT – APPLE
#-RT – RADIO SHACK
#-OTH – OTHER

In the reference section, the references are arranged separately under the main headings of websites and traditional.

Under these main headings the references are arranged by number according to the subheadings e.g. Osborne, Kaypro, Compaq, etc.

WEBSITE REFERENCES

AS A **CONVENIENCE** FOR YOU, EVEN THOUGH SOME WEB SITES ARE OBVIOUS, THE WEB SITES HAVE BEEN TYPED OUT SO THAT YOU CAN CUT AND PASTE THEM FOR YOUR OWN INTERNET SEARCHES.

HOWEVER, **ALL DETAILS ARE NOT INCLUDED** SINCE THEY WOULD BE TOO LONG IN SUCH WWW ADDRESSES, SO YOU MAY HAVE TO SEARCH THE SITE FOR THE SPECIFIC INFORMATION YOU WANT. WHAT IS BEING REFERENCED IS THERE, YOU JUST MAY HAVE TO SEARCH FOR IT.

THIS SHOULD SAVE YOU SOME TIME IN DOING YOUR OWN SEARCHES. SOME SITES ARE **NOT IMMEDIATELY OBVIOUS** FOR A VARIETY OF REASONS AND TOOK A GREAT DEAL OF TIME TO FIND.

COMPUTER SPECIFIC

OSBORNE WEB SITES

{1-OW} WWW.OLD-COMPUTERS.COM/MUSEUM/COMPUTER - NOTE COM NOT NET
{2-OW} WWW.OLDCOMPUTERS.NET/OSBORNE - NET NOT COM
{3-OW} WWW.ATARIMAGAZINES.COM/CREATIVE
{4-OW} WWW.FOLKLOSRE.ORG/STORYVIEW
{5-OW} WWW.DEVILI.IKI.FI/LIBRARY/PUBLICATION
{6-OW} WWW.EN.WIKIPEDIA.ORG/WIKI/OSBORNE_COMPUTER_CORPORATION
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{8-KW } WWW.PCWORLD.COM
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{24-KW } WWW.EN.WIKIPEDIA.ORG/WIKI/LAPTOP
{25-KW } WWW.RLFOX.COM/VINTAGE/KAYPRO/FILES/BYTEKAYPROII.MHT -
{26-KW } WWW.OBSOLETECOMPUTERMUSEUM.ORG

{27-KW } WWW.EN.WIKIPEDIA.ORG/WIKI/KAYPRO
{28-KW } WWW. WWW.EN.WIKIPEDIA.ORG/WIKI/ANDREW_KAY
{29-KW } WWW.SIGNONSANDIEGO.COM/UNIONTRIB/20050329/ NEWS_1B29KAY.HTML
{30-KW } WWW.ALUM.MIT.EDU/NET/NOTEWORTHY/PROFILES/KAY.HTML
{31-KW } WWW.GOLIATH.ECNEXT.COM
{32-KW } WWW.NONLINEARSYSTEMS.COM
{33-KW} WWW.VINTAGE-COMPUTER.COM – PERSONAL MESSAGE FROM
{34-KW } WWW.EN.WIKIPEDIA.ORG/WIKI/MICRO_CORNUCOPIA

COMPAQ WEB SITES

{1-CW } WWW.EN.WIKIPEIA.ORG/WIKI/COMPAQ
{2-CW } WWW.THEPCMUSEUM.NET/SOFTWARE.PHP
{3-CW } WWW.OBSOLETECOMPUTERMUSEUM.ORG/COMPAQ/
{4-CW } WWW.USATODAY.COM
{5-CW } WWW.OLD-COMPUTERS.COM/MUSEUM/COMPUTER
{6-CW } WWW.COMPUTERHISTORY.ORG/TIMELINE
{7-CW } WWW.EN.WIKIPEDIA.ORG/WIKI/COMPAQ
{8-CW } WWW.DIGIBARN.COM/COLLECTGIONS/SYSTEMS/COMPAQ
{9-CW } WWW.OLDCOMPUTERS.NET
{10-CW } WWW.OLDCOMPUTERS.NET/BYTE-COMPAQ
{11-CW } WWW.WEB.ARCHIVE.ORG.WEB
{12-CW } WWW.COMPUTERMUSEUM.LI/TESTPAGE/COMPAQPORTABLE.HTM

IBM WEBSITES

{1-IW } WWW.EN.WIKIPEDIA.ORG/WIKI/IBM
{2-IW } WWW.COMPUTERMUSEUM.LI/TESTPAGE/IBM-CHRONOLOGY.HTM
{3-IW } WWW.OLDCOMPUTERS.NET/IBM5155.HTML
{4-IW } WWW.EN.WIKIPEDIA.ORG/WIKI/IBM_PERSONAL_COMPUTER -
{5-IW } WWW.EN.WIKIPEDIA.ORG/WIKI/IBM_PC_COMPATIBLE
{6-IW } WWW.EN.WIKIPEDIA.ORG/WIKI/LENOVO_GROUP
{7-IW } WWW-03.IBM.COM/IBM/HISTORY/EXHIBITS/PC25
{8-IW } THE MORNING CALL NEWSPAPER, ALLENTOWN, PA TUESDAY 02/26/2008 P# D4 [WWW.MCALL.COM – FOR ARCHIVES OF ARTICLES – WWW.THEMORNINGCALL.COM ALSO] – “IBM ROLLS OUT NEW MAINFRAME; IT REFLECTS COMPANY’S FOCUS ON COSTS” BY JORNDON ROBERTSON OF THE ASSOCIATED PRESS
{9-IW } WWW.VINTAGEIBM.NET
{10-IW } WWW.OLDCOMPUTERS.NET

{11-IW} WWW.VINTAGE.ORG/GALLERY.PHP?GROUPTAG=IBM026
{12-IW} WWW.EN.WIKIPEDIA.ORG/WIKI/IBM_PERSONAL_SYSTEM/2
{12-IW} WWW.CEDMAGIC.COM/HISTORY/IBM-PS2-1987.HTML
{13-IW} WWW.VINTAGE.ORG/GALLERY.PHP?GROUPTAG=IBM026
{14-IW } WWW.EN.WIKIPEDIA.ORG/WIKI/IBM_PORTABLE

APPLE WEBSITES

{1-AW } WWW.EN.WIKIPEDIA.ORG/WIKI/APPLE_CORPS
{2-AW } THE MORNING CALL P#D4 WEDNESDAY MARCH 5, 2008, "APPLE'S STEVE JOBS: NO STOCK BUY-BACK ON THE HORIZON" BY CONNIE GUGLIELMO OF BLOOMBERG NEWS [WWW.MCALL.COM – FOR ARCHIVES OF ARTICLES – WWW.THEMORNINGCALL.COM ALSO]
{3-AW } THE MORNING CALL P#D4 WEDNESDAY MARCH 5, 2008, "APPLE ADDS BUSINESS FEATURES TO Iphone" BY CONNIE GUGLIELMO OF BLOOMBERG NEWS [WWW.MCALL.COM – FOR ARCHIVES OF ARTICLES – WWW.THEMORNINGCALL.COM ALSO]

{4-AW } WWW.EN.WIKIPEDIA.ORG/WIKI/APPLE_COMPUTER
{5-AW } WWW.EN.WIKIPEDIA.ORG/WIKI/MACKINTOSH
{6-AW } WWW.OLDCOMPUTERS.NET
{7-AW } WWW.OLDCOMPUTERS.COM

RADIO SHACK WEBSITES

{1-RW } WWW.EN.WIKIPEDIA.ORG/WIKI/TRS-80
{2-RW } WWW.LVCG.ORG
{3-RW } WWW.RADIOSHACKCORPORATION.COM – GOOD ON HISTORY
{4-RW } WWW.RADIOSHACK.COM – COMPUTERS THEY NOW SELL
{5-RW } WWW.OLDCOMPUTERS.NET/TRS80III.HTML
{6-RW } WWW.OLDCOMPUTERS.NET/TRS80I.HTML
{7-RW } WWW.OLDCOMPUTERS.COM

GENERAL WEB SITES

{1-OTW } WWW.THEPCMUSEUM.NET/TIMELINE.PHP
{2-OTW} WWW.COMPUTERMUSEUM.LI/TESTPAGE/FLOPPYDISKETTETYPES.HTM
{3-OTW } WWW.OLDCOMPUTERS.NET/ATTACHE.HTML
{4-OTW } EI.CS.VT.EDU/~HISTORY/TIME.MOTY.1982.HTML
{5-OTW } WWW.EN.WIKIPEDIA.ORG/WIKI/TEXAS_INSTRUMENTS
{6-OTW } WWW.COMPUTERMUSEUM.ORG

{7-OTW } WWW.COMPUTERHISTORY.ORG
{8-OTW } VMOC.MUSEOPHILE.COM
{9-OTW } THE MORNING CALL NEWSPAPER, ALLENTOWN, PA TUESDAY 03/04/2008 P# E4 – "COLLECTIBLES – CONCEPT OF RECYCLING ADDS NEW CACHET TO GOING FOR THE 'GREEN'" BY HARRY RINKER [WWW.MCALL.COM – FOR ARCHIVES OF ARTICLES – WWW.THEMORNINGCALL.COM ALSO]
{10-OTW } THE MORNING CALL NEWSPAPER, ALLENTOWN, PA TUESDAY 02/26/2008 P# D4 – "CHEAP LAPTOPS FOR CHILDREN IN POOR NATIONS ARE BUGGY, SLOW" BY MARTHA MENDOZA OF THE ASSOCIATED PRESS [WWW.MCALL.COM – FOR ARCHIVES OF ARTICLES – WWW.THEMORNINGCALL.COM ALSO]
{11-OTW } WWW.REMAG.COM – "EDITORIAL – BALANCING ACT" BY TIM STUDT, EDITOR IN CHIEF, R& D MAGAZINE FEBRUARY 2008, P#9
{12-OTW } WWW.PCWORLD.COM/ARTICLE/ID,126692-PGE,9-C,SYSTEMS/ARTICLE.HTML

ARTICLE ON 25 GREATEST PC'S OF ALL TIME – & CRITERIA –

LISTED FOR YOUR CONVENIENCE - IN REVERSE ORDER BUT NOT ALL INCLUDED

KAYPRO II #25, TOSHIBA T1000 (1987) LAPTOP 12X2X``" 6.4 LBS – 3.5 LBS LIGHTER THAN NEAREST COMPETITOR, TANDY TRS-80 MODEL 1 (1977) – FIRST COMPUTER TRULY MARKETED TO THE MASSES $600 SOLD 200,000 AT TIME FEW KNEW OF COMPUTING, ATARI 800 (1979), IBM AT MODEL 5170 (1984), 80286, COLUMBIA DATA PRODUCTS MPC 1600-1 (1982) – MULTI PERSONAL COMPUTER = MPC, FIRST IBM CLONE ONLY WANTE 2-3% OF IBM HUGH MARKET – MANY "IBM LOOK-ALIKES" SOON FOLLOWED AND PC WORLD MAGAZINE CREATED TO FOLLOW THEM, TANDY TRS-80 MODEL 100 (1983) FIRST NOTEBOOK COMPUTER THAT CAUGHT ON – 3.4 LBS, - SIZE OF A NOTEBOOK, 2X7.5 INCH SCREEN, 3O0 BPS MODEM & CONNECT TO COMPUSERVE AT THAT TIME, IBM PC MODEL 5150 (1981), APPLE MACINTOSH PLUS (1986), $2599, SOLD UNTIL 1990 – LONGEST SELLING MAC, STAR TREK IV: THE VOYAGE HOME IN, REINCARNATED AS FISHTANKS!, COMPAQ DESKPRO 386 (1986) FIRST TO USE NEW 386 CHIP & BEAT IBM TO IT, $6499, SHOWED PC PLATFORM LARGER THAN ANY ONE COMPANY

#1 – APPLE II (1977) – "THE MACHINE THAT CHANGED EVERYTHING" – NOT FIRST PC, OR MOST ADVANCED OR EVEN BEST SELLING - $1200 – TWICE BIGGEST 2 COMPETITORS - - PACKED MORE PURE INNOVATION THAN ANY OTHER EARLY COMPUTER – FIRST PC THAT DESERVED TO BE CALLED A CONSUMER ELECTRONICS DEVICE – MORE THAN 2 MILLION PRODUCED –

NEAR MISSES – 1971 – 1983

COMMODORE PET 2001 (1977) – AIMED AT MASSES – PET = PERSONAL ELECTRONIC TRANSACTOR & POSSIBLY PET ROCK CRAZE AT THAT TIME

HEATHKIT H-89 (1979) - $1800 KIT – FULLY ASSEMBLED IT SOLD AS ZENITH Z-89 – RAN CP/M – 90K FLOPPY DISK DRIVE

OSBORNE 1 (1981) – FIRST LUGGABLE – 26 LBS – BUNDLED SOFTWARE –

COMMODORE 64 (1982) – MOST POPULAR SYSTEM OF ERA – 30 MILLION SOLD!!! OVER 11 YEAR PRODUCTION RUN

COMPAQ PORTABLE (1983)

1984-1989

APPLE MACKINTOSH (1984)

ATARI 520ST (1985)

APPLE MACINTOSH II (1987)

IBM PS/2 SERIES (1987)

ATARI PORTFOLIO (1989) FIRST PALMTOP TO RUN MS-DOS REASONABLY PRICED, SIZE VHS TAPE – BUT ATARI FLOUNDERING AT THAT TIME

{13-OTW} WWW.CADIGITAL.COM/KILDALL.HTM
{14-OTW} WWW.PC-HISTORY.ORG
{15-OTW} WWW.QUERYNYTIMES.COM/GST/FULLPAGE.HTML?SEC=TECHNOLOGY&
RES=950DEF81339F34A1….
"COMPUTERS: HOT TIME FOR SALESMEN" BY ELIZABETH FOWLER PUBLISHED MARCH 27, 1983 – IN TECHNOLOGY SECTION SATURDAY MARCH 15, 2008
{16-OTW} WWW.EN.WIKIPEDIA.ORG/TRAGEDY_OF_THE_COMMONS
{17-OTW} WWW.TUCKER48.COM
{18-OTW} WWW.TUCKERCLUB.ORG
{19-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/MENSA_INTERNATIONAL
{20-OTW} WWW.CBRMENSA.ORG/FAMOUS.HTML
{21-OTW}
WWW.PBS.ORG/CRINGELY/PULPIT/2005/PULPIT_20050616_000856.HTML
{22-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/VENTURE_CAPITAL
{23-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/MASLOW'S_HIERARVHY_OF_NEEDS
{24-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/ABRAHAM_MASLOW
{25-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/REDSHIFT_(THEORY)
{26-OTW} WWW.AWKSCHT.COM/
{27-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/BETHLEHEM_STEEL
{28-OTW} WWW.VINTAGE-COMPUTER.COM
{29-OTW} WWW.TCF-NJ.ORG
{30-OTW} WWW.EN.WIKIPEDIA.ORG/MURPHY'S_LAW
{31-OTW} WWW.EN.WIKIPEDIA.ORG/A_HISTORY_OF_MURPHY%27S_LAW
{32-OTW} WWW.PC-HISTORY.ORG
{33-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/MURPHY'S_LAW
{34-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/A_HISTORY_OF_MURPHY%27S_LAW
{35-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/REDSHIFT_(THEORY)
{36-OTW} WWW. WWW.EN.WIKIPEDIA.ORG/WIKI/CLUB_OF_ROME
{37-OTW}
WWW.COMPUTERMUSEUM.LI/TESTPAGE/FLOPPYDISKETTETYPES.HTM - INFORMATION ON DIFFERENT CAPACITIES OF FORMATED DISKS - - DEPENDS ON HOW DISK FORMATED
{38-OTW} WWW.EN.WIKIPEDIA.ORG/WIKI/LIST_COMPUTER_SIZE_CATEGORIES
{39-OTW} WWW. WWW.EN.WIKIPEDIA.ORG/WIKI/PERSONAL _COMPUTER
{40-OTW} WWW. WWW.EN.WIKIPEDIA.ORG/WIKI/PORTABLE _COMPUTER
{41-OTW} WWW.
WWW.EN.WIKIPEDIA.ORG/WIKI/HOMEBREW_COMPUTER_CLUB

{42-OTW} WWW. WWW.EN.WIKIPEDIA.ORG/WIKI/HOMEBUILT_COMPUTER_COMPUTER
{43-OTW} WWW. WWW.EN.WIKIPEDIA.ORG/WIKI/1977_TRINITY
{44-OTW} WWW.ISLANDNET.COM/~KPOLSSON/COMPPOP -- COMPUTERS IN POP CULTURE
{45-OTW} WWW.PCWORLD.COM/PRINTABLE/ARTICLE/ID, 129857/PRINTABLE.HTML -- 10 WORST PCS OF ALL TIME –
{46-OTW} WWW.OLDCOMPUTERS.NET/HEATHKIT-H8.HTML

COMPUTER HISTORY & TIMELINE WEBSITES

{1-HTW} WWW.ISLANDNET.COM/~KPOLSSON/COMPHIST
{2-HTW} WWW.THEPCMUSEUM.NET/TIMELINE.PHP
{3-HTW} WWW,COMPUTERMUSEUM.LI/TESTPAGE/01HISTORYCD-CHRONO1.HTM
{4-HTW} WWW.FORTUNECITY.COM/MARINA/REACH/435/COMPHIS3.HTML

SOME REFERENCES ON ARTHUR CLARKE

{1-ACW} WWW.IMDB.COM/TITLE/TT0062622/ AND ALSO TTOO86837/
{2-ACW} WWW.AMAZON.COM
{3-ACW} HTTP://NEWS.AOL.COM/ENTERTAINMENT/STORY/_A/WRITER-ARTHUR-C-CLARKE-DIES-90/2008031818080....
{4-ACW} HTTP://ABCNEWS.GO.COM/TECHNOLOGY/STORY?ID=4476240
{5-ACW} THE MORNING CALL NEWSPAPER ALLENTOWN, PA P#B9 WEDNESDAY MARCH 19, 2008 - [WWW.MCALL.COM – FOR ARCHIVES OF ARTICLES – WWW.THEMORNINGCALL.COM ALSO]
{6-ACW} WWW.DAVIDROTHMAN.COM/JUNGLE.HTML
(7-ACW} WWW.EN.WIKIPEDIA.ORG/SIKI/ARTHUR_C_CLARKE
{8-ACW} WWW.OLDCOMPUTERS.NET/KAYPROII.HTML.
{9-ACW} WWWFORTUNECITY.COM/MARIEA/REACH/435/KPRO10.HTM HAS PICTURE OF HIM WITH KAYPRO

TRADITIONAL REFERENCES

NOTE THAT MANY BOOKS ARE READILY AVAILABLE ON **AMAZON AND BARNES AND NOBLE INTERNET SITES.**

HOWEVER, IF THEY ARE NOT, THEN MANY **LOCAL LIBRARIES** MAY STILL HAVE THEM. **INTERLIBRARY LOAN** CAN FACILITATE GETTING BOOKS FROM LIBRARIES OUTSIDE YOUR IMMEDIATE AREA.

NOTE THAT WWW.PAPERBACKSWAP.COM IS ANOTHER VERY GOOD INEXPENSIVE SOURCE FOR MANY OUT OF PRINT BOOKS.

MANY BOOKS AND DOCUMENTS ARE BEING **SCANNED** AND OFFERED AS **DOWNLOADS**, SOME FOR FREE.

I HAVE NOT READ ALL OF THESE BOOKS, BUT HOPE TO IN THE FUTURE FOR OTHER STS RESEARCH PROJECTS. I DID READ MOST OF OSBORNE'S BOOK. THEY ARE REFERENCED FOR YOUR CONVENIENCE, SINCE THEY SEEM SIGNIFICANT. THERE ARE MANY MORE, SINCE COMPUTERS ARE SO IMPORTANT IN OUR EVERYDAY LIVES. PLEASE DO YOUR OWN SEARCHES AND RESEARCH.

OSBORNE

{1-OT } "Hypergrowth; The rise and fall of Osborne Computers Corporation"
By Adam Osborne and John C. Dvorak
ISBN: 0-918347-00-9
It is available as a used book on Amazon.com from several sellers for about $10 - $20 including shipping.

NOTE THAT THE BOOK HAS NO INDEX!

BOOK I HAVE IS ACTUALLY AUTOGRAPHED BY ADAM OSBORNE 7/24/87 TO MARIA SERAPIO

KAYPRO

{1-KT } 1987 FAULKNER TECHNICAL REPORTS, INC. MAY 1987
6560 N. PARK DR. PENNSAUKEN, NJ 08109, PHONE 609-662-2070

{2-KT } PC RESOURCE, MAY 1987, P#1 – CLONE REPORT
{3-KT } COMPUTER & SOFTWARE NEWS MARCH 16, 1987
{4-KT } MICRO MARKET WORLD MARCH 16, 1987, "UP FRONT – CHAMP OF THE INDEPENDENTS," DAVID KAY INTERVIEW
{5-KT } MICROTIMES JUNE 1987 P #65-66, "KAYPRO ENTERS THE 386 ERA" BY ROBERT BEAUCHAMP
{6-KT } CALIFORNIA COMPUTER NEWS APRIL 1987, VOLUME V, NO 4, PAGE #1 – 17, CCN INTERVIEW DAVID KAY, BY VIC KROHN
{7-KT } THE TRIBUNE – FINANCIAL SECTION – THURSDAY DECEMBER 4, 1986, PAGE #AA1-3, DONALD COLEMAN, TRIBUNE FINANCIAL WRITER, "SCRAMBLING FOR A COMEBACK"

COMPAQ

{1-CT} – NONE FOUND SO FAR

IBM

{1-IT}} – NONE FOUND SO FAR

APPLE

{1-AT}**} – NONE FOUND SO FAR**

RADIO SHACK

{1-RT } "PRIMING THE PUMP: HOW TRS-80 ENTHUSIASTS HELPED SPARK THE PC REVOLUTION BY DAVID WELSH AND THERESA WELSH, 2007, $19.95 AMAZON,

OTHER

{1-OTH } "ON THE EDGE: THE SPECTACULAR RISE AND FALL OF COMMODORE," BY BRIAN BAGNALL, 2005, AMAZON $19.77
{2-OTH } "DEALERS OF LIGHTNING – XEROX PARK AND THE DAWN OF THE COMPUTER AGE" BY MICHAEL HILTZIK, 2000, AMAZON $13.00
{3-OTH } "FUMBLING THE FUTURE: HOW XEROX INVENTED, THEN IGNORED, THE FIRST PERSONAL COMPUTER," BY DOUGLAS SMITH AND ROBERT ALEXANDER, 1999, $18 AMAZON
{4-OTH } "BACKFIRE; CARLY FORINA'S HIGH-STAKES BATTLE FOR THE SOUL OF HEWLETT-PACKARD," BY PETER BURROWS, AMAZON $28
{5-OTH } "TOUGH CHOICES: A MEMOIR," AUDIO CD, 2006, $9.00 AMAZON

{6-OT} "ACCIDENTAL EMPIRES: HOW THE BOYS OF SILICON VALLEY MAKE THEIR MILLION, BATTLE FOREIGN COMPETITION, AND STILL CAN'T GET A DATE," BY ROBERT X. CRINGLELY, 1996, $11 AMAZON

{7-OTH} "AUTOMOBILES – TUCKER," HISTORY CHANNEL DVD, CAT # AAE-73503, 1994, AVAILABLE ON AMAZON

{8-OTH} "PRESTON TUCKER – A BIOGRAPHY," BY CHARLES T. PEARSON, POCKET BOOKS, NY, NY, 1960, ISBN – 0-671-66046-2

{9-OTH} "DESIGN AND DESTINY: THE MAKING OF THE TUCKER AUTOMOBILE," BY PHILIP S. EGAN, ON THE MARK PUBLICATIONS, ORANGE, CA, 1989, ISBN 0-924321-01-6

{10-OTH} "WORKING CHANGES AND CHOICES," BY O'TOOLE, SCHEIBER & WOOD, 1981, ISBN-0-89885-111-4, HUMAN SCIENCES PRESS, INC, 72, FIFTH AVE, NY, NY 10011 – PAGE #4-5.

{11-OTH} "THE HUNT FOR RED OCTOBER," TOM CLANCY, ISBN-0-425-12027-9, 1984, BERKLEY PUBLISHING GROUP, 200 MADISON AVE., BOOKS, NY, NY 1006

{12-OTH} "CAR TALK WITH CLICK AND CLACK THE TAPPET BROTHERS," TOM AND RAY MAGLIOZZI WITH TERRY BISSON, 1991, BANTAM DOUBLEDAY DELL PUBLISHING GROUP, INC. 666 FIFTH AVENUE, NY, NY 10103, ISBN-0440-50364-7

MY COMPUTER REFERENCES

These are also included to indicate some of the projects our Kaypros were used in.

In addition, I had the fantastic opportunity to work in management for about 2.5 years at a plant of a Fortune 500 company that manufactured specialty gases for many of the major chip manufacturers globally. Obviously, much is confidential, but it gave me some unique ways of looking at the computer industry and how it has and is evolving. This experience certainly contributes to this paper and my other related activities.

A bonus of working for this company was that you were using the then **"state of the art"** desktop computers and other related computing software [.e.g, LIMS, proprietary and other production / project management software, etc.] to do your job!

1985

Frank J. Gadek and Lois P. Gadek, **"Enology Microcomputer Applications for Small Wineries,"** Proceedings of the Seventeenth Pennsylvania Grape Industry Conference, The Pennsylvania State University, University Park, PA, **February 27-28, 1985.**

1986

Frank J. Gadek, "Technical Brief: Survey of Microcomputer Use in Small Eastern Wineries," Am. J. Enol. Vitic., **37**, 228-230 (1986).

1987

Frank Gadek, **"A special SUBMIT program for loading a RAM disk,"** KUGRAM, **5**(1), 4-5 (1987).

Frank Gadek, **"Technical Tips: Trouble With Floppy Disk Controllers,"** Micro Cornucopia, **33**, 84 (1987).

Frank Gadek and Lois Gadek, **"Technical Tips: Help for Fixing Kaypros,"** Micro Cornucopia, **34**, 92 (1987).

Please note –

I included the complete web site sources so you could conveniently copy and paste it into your own web search.

Also note that in this whole paper, sometimes **capital letters** are used for the convenience of those who are older and find it difficult to read lower case letters.

It is not “shouting” for our generation and many appreciate it!

TABLES / CHARTS [GRAPHS]

THESE WERE PLACED AT THE **VERY END** OF THIS PAPER FOR YOUR CONVENIENCE IN FLIPPING BACK TO SEE THEM AS YOU READ THE TEXT

THEY WERE **NOT** INCLUDED IN THE TEXT IN ORDER TO BETTER KEEP THE OVERALL FLOW OF THE ARTICLE MOVING SMOOTHLY AND QUICKLY

ALSO, IN CASE THERE WERE ANY FORMATING / PRINTING / ETC. ISSUES THAT MIGHT DEVELOP WITH CERTAIN SOFTWARE SYSTEMS ACCESSING THIS PAPER

NOTE THAT IF YOU PRINT THESE IN COLOR OR VIEW THEM ON YOUR COMPUTER SCREEN, SIGNIFICANT ITEMS ARE HIGHLIGHTED IN DIFFERENT COLORS.

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TABLE 1

COMPARE FIRST KAYPRO II, OSBORNE 1 & COMPAQ PORTABLE COMPUTERS												
COPYRIGHT	F. GADEK		3/10/2008						PORTABLE ???/			
	"TRUE" PORTABLE						DESKTOP	%	"SELF CONTAINED"			%
	OSBORNE	% INC	KAYPRO	% INC	COMPAQ	% INC	IBM 5150	INC	IBM5100	% INC	IBM 5110	INC
YEAR INTRODUCED	1981		1982		1982		1981		1975		1978	
YEAR BANKRUPCY	1983		1990									
PRICE, $	$1,795		$1,795		$3,590		$3,000		$19,975		$10,225	
IN 2006 DOLLARS	$4,235	136	$4,235	136	$7,678	114	$7,077	136	$78,883	295	$32,847	221
NOTES:	REFERENCES:											
	WWW.OLDCOMPUTERS.NET/OSBORNE.HTML											

TABLE 2

[COPYRIGHT F. GADEK 03/17/2008]

COMPARE FIRST KAYPRO II, OSBORNE 1 & COMPAQ PORTABLE COMPUTERS						
					PORTABLE ???/"SELF	
	"TRUE" PORTABLE			DESKTOP	CONTAINED"	
	OSBORNE	KAYPRO	COMPAQ	IBM 5150	IBM5100	IBM 5110
YEAR INTRODUCED	1981	1982	1982	1981	1975	1978
YEAR FILED FOR BANKRUPCY	1983	1990				
PRICE, $	1795	1795 [1595]	3590	3000	19,975	10,225
WEIGHT, POUNDS	24.5	29	28		55	43
DIMENSIONS - INCHES		18 X 8 X 15	20 X 8.5 X 15.3			
CPU	Z80, 4 MHz	Z80, 2.5 MHz	INTEL 8088, 4.77MHz	INTEL 8088, 4.77MHz	IBM 1.9MHz	IBM 1.9MHz
RAM	64 K	64 K	128K [640 MAX]	16K [640 MAX]	16K/64 MAX	16K/64 MAX
DISPLAY - TEXT, CHAR X LINES	5", 53 X 24	9", 80 X 24	9", 80 X 25	80 X 24	5", 64 X 16	5", 64 X 16
PORTS	PARALLEL	PARALLEL	PARALLEL CARD	CASSETTE	I/O PERIPH	I/O PERIPH
	SERIAL	SERIAL		KEYBOARD		
	MODEM	NONE				
DRIVE STORAGE	2 - 5.25," 91K	2 - 5.25," 191K	2 - 5.25," 320K	TAPE	TAPE	TAPE
OS - OPERATING SYSTEM	CP / M	CP / M	MS-DOS	IBM PC-DOS V 1.0	APL / BASIC	APL / BASIC
FREE SOFTWARE	YES	YES				
DETACHABLE KEYBOARD	NO	YES	YES	YES	NO	NO
CASE	PLASTIC	METAL	PLASTIC			
COMMENTS			FIRST 100%	OPTIONAL DISK DRIVE	IBM "FIRST"	
			COMPATIBLE IBM	AUDIO CASSETTE TO	MICRO-	
			COMPATIBLE CLONE	LOAD / SAVE DATA!	COMPUTER	
				INTERNAL EXPANSION	NOT MAIN-	
				SLOTS	FRAME	
NOTES:	REFERENCES:				FIRST	
	WWW.OLDCOMPUTERS.NET/OSBORNE.HTML				PORTABLE???	

TABLE 3

[COPYRIGHT F. GADEK 03/17/2008]

COMPARE & CONTRAST SPECIFICATIONS PPC "TRINITY"				
	F. GADEK		03/012008	IBM
				PORTABLE
			COMPAQ	PC5155
SPEC	OSBORNE 1	KAYPRO II	PORTABLE	MODEL 68
DATE	1981	1982	1983	1984
OS	CP/M	CP/M	IBM COMPAT	IBM PC-DOS
CPU	Z80	Z80	INTEL 8088	INTEL8088
SPEED MHZ	4	2.5	4.77	4.77
RAM K	64	64	128	256
SCREEN DIA "	5	9	9	9
DISK DRIVES				
#	2	2	2	2
CAP K	100	191	360	360
DETACHABLE				
KEYBOARD	NO	YES	YES	YES
CASE	PLASTIC	METAL	PLASTIC	PLASTIC
WEATHER				
EXPOSURE	NO	YES	NO	NO
NEW COMPANY	YES	NO	YES	NO
INCLUDE				
EXTENSIVE				
SOFTWARE	YES	YES	NO	NO
PRICE	$1,795	$1,795	$3,590	$4,225
	$1,295	$1,595		
	$995			
NOTE -	OPTIONS NOT INCLUDED			
	SOME CHANGES IN LATER VERSIONS			
REFERENCES -				
	WWW.OLDCOMPUTERS.NET			
	WWW.WIKIPEDIA.ORG			
	WWW.OLDCOMPUTERS.COM			
		[NOTE - COM NOT NET]		
	WWW.RLFOX.COM			

TABLE 4

BEST COMPUTER SELLERS BY CATEGORY							
		FROM MARCH 16, 1987 COMPUTER & SOFTWARE NEWS					
COPYRIGHT			F. GADEK		2/28/2008		
BRAND	PPC	Oct-85	Jan-86	Aug-86	Nov-86	AVERAGE	SUM
IBM		32	34	27	38	33	131
APPLE		23	30	21	27	25	101
KAYPRO	PPC	6	2	8	6	6	22
LEADING EDGE		1	3	8	6	5	18
EPSON			1	3	4	3	8
AT & T		2	2	4	3	3	11
COMPAQ	PPC	2	2	4	3	3	11
ZENITH		3	2		2	2	7
ATARI		2	3	2	1	2	8
COMMODORE		2	3	4	1	3	10
OTHER		8	10	15	7	10	40
TOTAL =		81	92	96	98	93	367
TOTAL IBM & APPLE =							
		55	64	48	65	58	232
TOTAL OTHER THAN IBM, APPLE, KAYPRO =							
		20	26	40	27	30	113
TOTAL OTHER THAN IBM, APPLE, KAYPRO & COMPAQ							
		18	24	36	24	27	102
NOTE - PPC = PORTABLE PERSONAL COMPUTER							

TABLE 4 / CHART 1

[COPYRIGHT F. GADEK 03/17/2008]

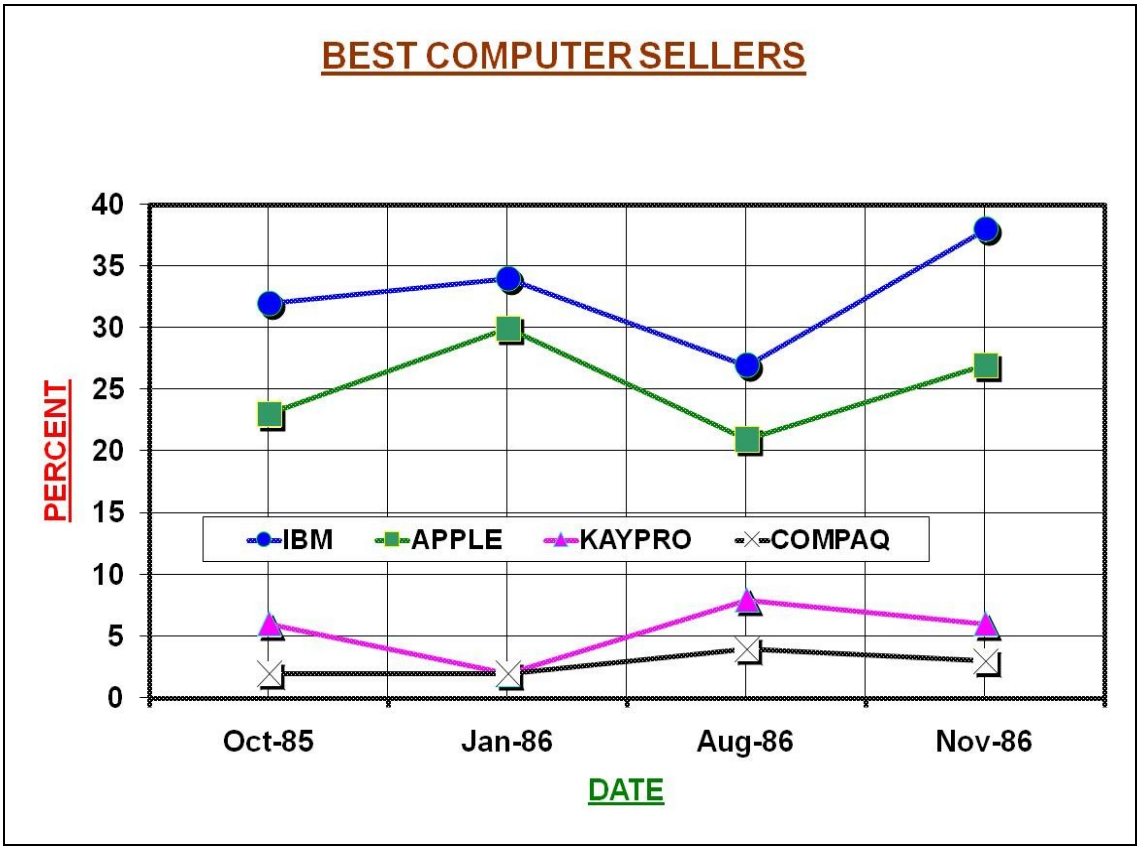

TABLE 4 CHART 2

[COPYRIGHT F. GADEK 03/17/2008]

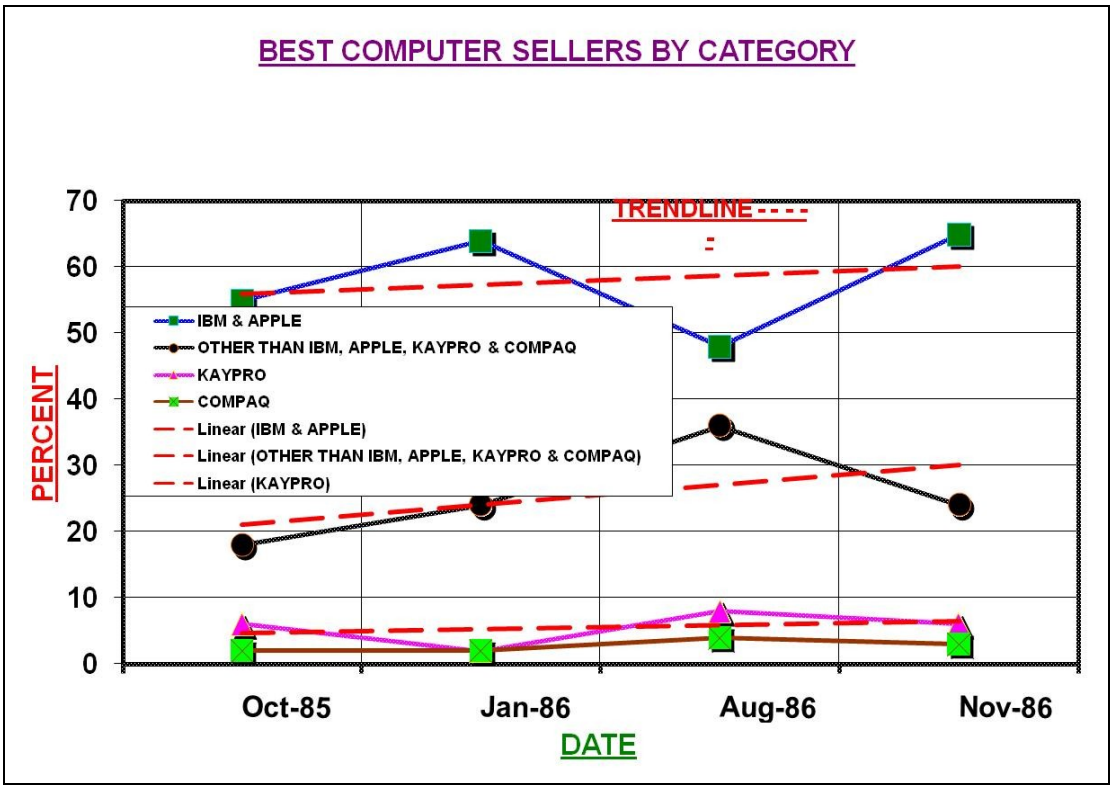

TABLE 5

SALES & LOSSES 3 MAIN PORTABLE, PERSONAL COMPUTER COMPANIES 1980'S											
	F. GADEK		COPYRIGHT		3/10/2008						
				OSBORNE			KAYPRO			COMPAQ	
			YEAR			LOSS			LOSS		
	YEAR		BANK-	SALES	LOSS	% OF	SALES	LOSS	% OF	SALES	LOSS
YEAR	FOUNDED		RUPCY	$ X 10^{+6}	$ X 10^{+6}	SALES	$ X 10^{+6}	$ X 10^{+6}	SALES	$ X 10^{+6}	$ X 10^{+6}
1981	OSBORNE	KAYPRO		$6	-$1	-21					
1982	COMPAQ			$67	-$8	-12	120				
1983			OSBORNE	$70						$111	
1984										$329	
1985							75.4	-15.5	-21	$504	
1986							77.9				
1987											
1988										$12,000	
1989							21.8	-19.4	-89		
1990			KAYPRO								
REFERENCES -											
	COMPAQ	WWW.OLDCOMPUTERS.NET									
	OSBORNE	WWW.SALON.COM/PEOPLE									
	KAYPRO	WWW.FORTUNECITY.COM/MAIRINA/RAEACH/435/KPRO10.HTM									
		WWW.WIKIPEDIA.ORG/WIKI/Kaypro									
		TRIBUNE ARTICLE THURSDAY 12/04/86, FINANCIAL SECTION									
		BY DONALD COLEMAN									

TABLE 5 / CHART 1

[COPYRIGHT F. GADEK 03/17/2008]

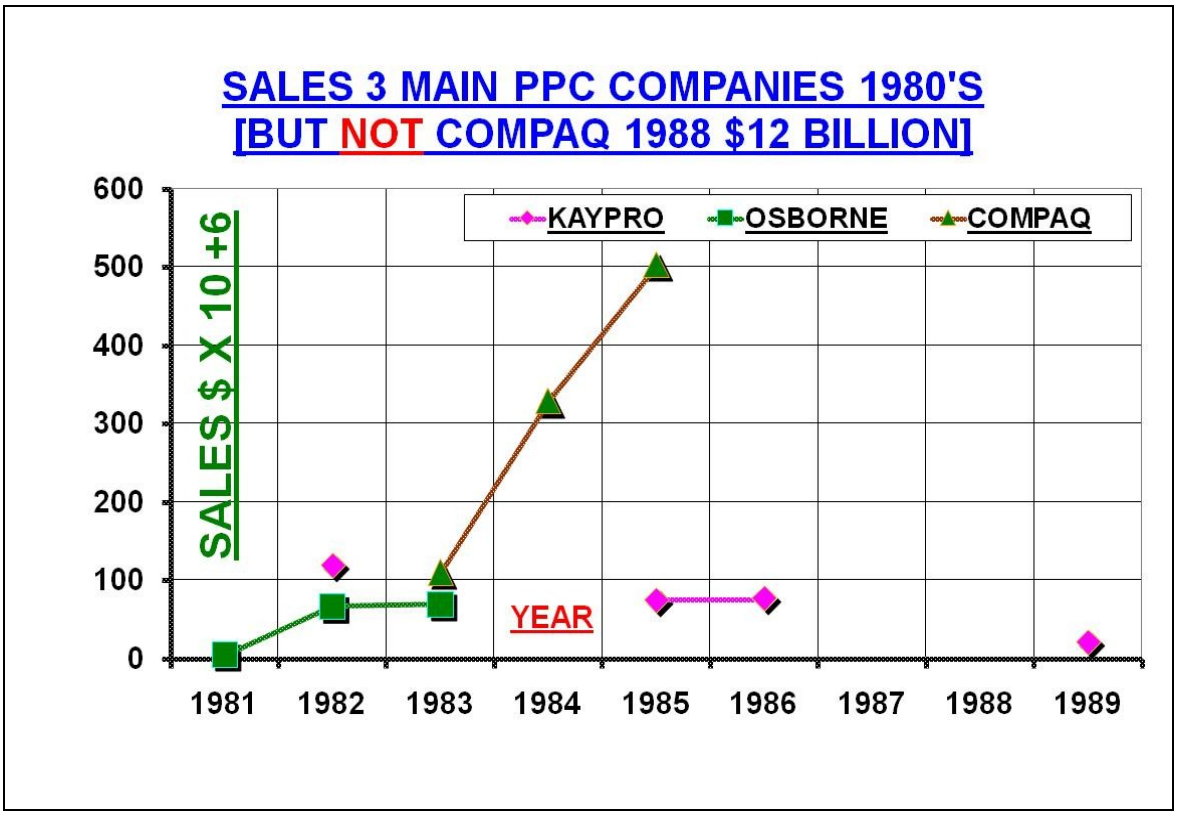

TABLE 5 / CHART 2

[COPYRIGHT F. GADEK 03/17/2008]

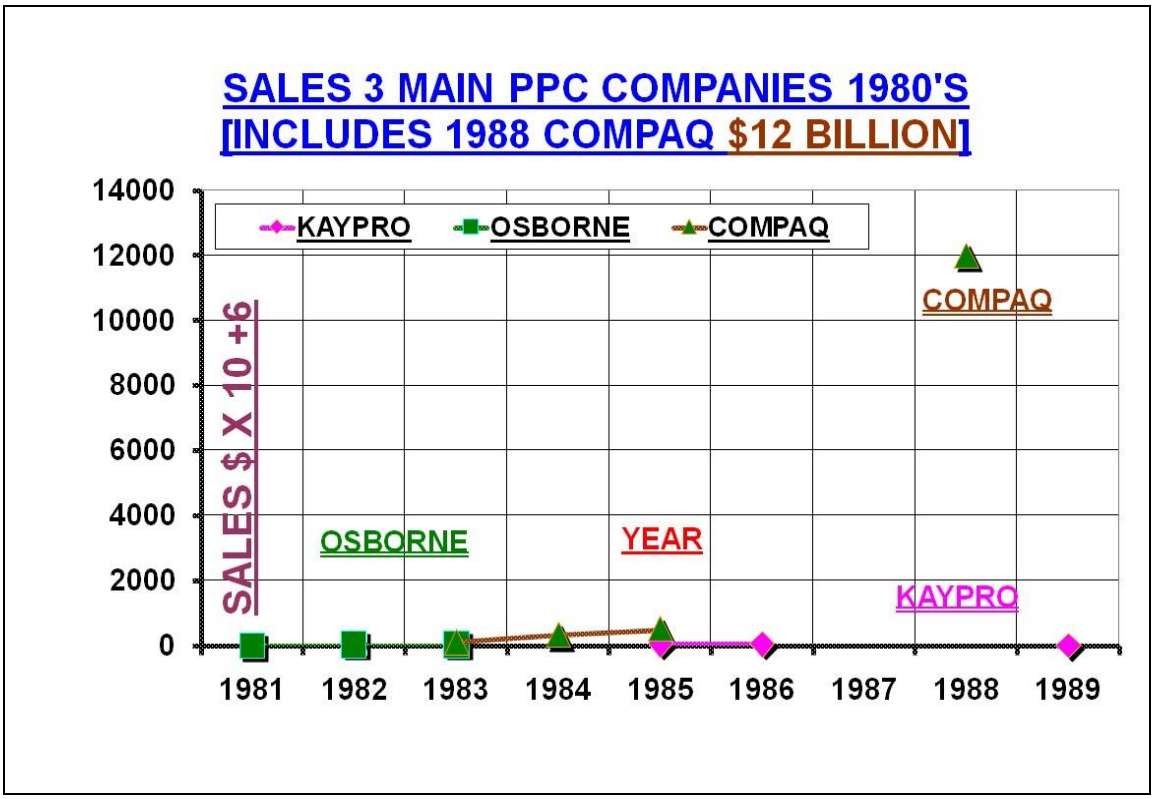

TABLE 5 / CHART 3

[COPYRIGHT F. GADEK 03/17/2008]

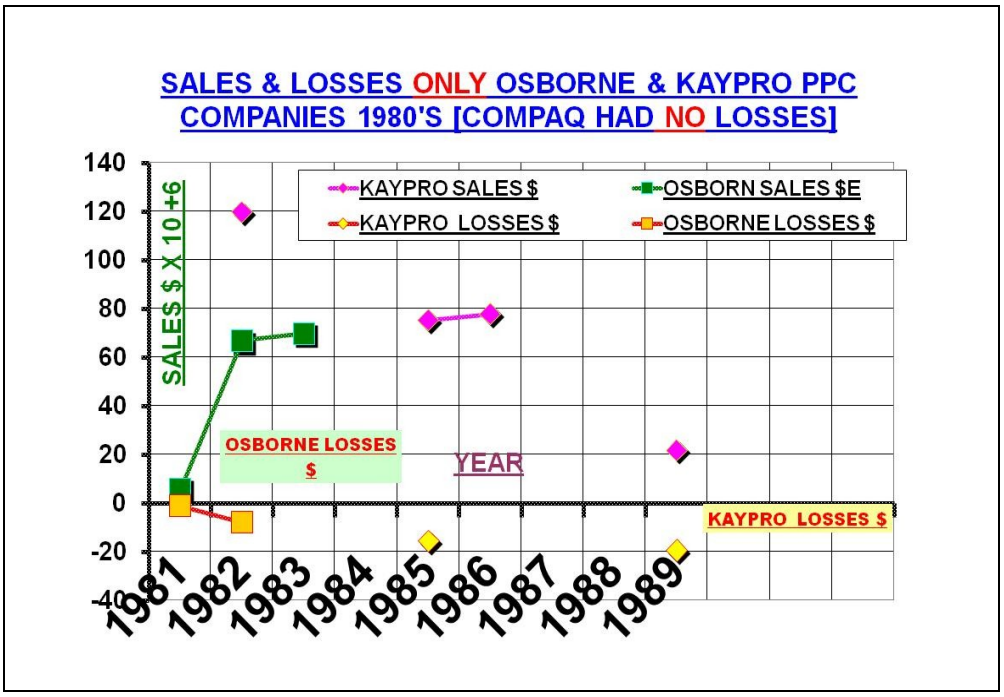

TABLE 5 / CHART 4

[COPYRIGHT F. GADEK 03/17/2008]

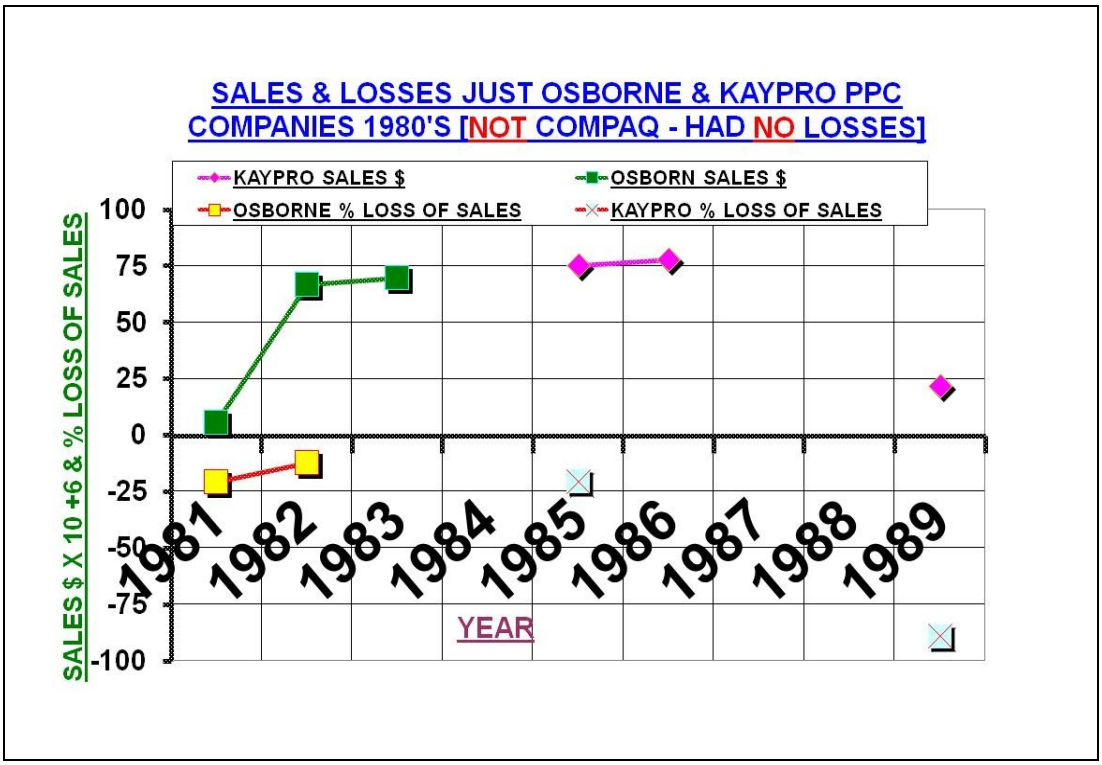

TABLE 6

OSBORNE PORTABLE PERSONAL COMPUTERS [PPC'S] IN 1980'S									
	F. GADEK	COPYRIGHT					3/10/2008		
YEAR					SPEED	RAM		DISK DRIVES	
INTRODUCED	COMPUTER	TYPE	COST	CPU	MHz	RAM K	MONITOR	#	CAP, KB
1980	FOUNDED								
1981	OSBORNE 1	CP/M 2.2	$1,795		4	64	5"	2	91
1982									
1983	EXECUTIVE [OCC-2]	CP / M 2.2	$2,495			124	7"	3	185
	EXECUTIVE II								
	ENCORE	MS-DOS		8086		128	LCD		
	BANKRUPTCY FILED								
1984									
1985	COME OUT OF BANKRUPTCY								
	VIXEN	CP/M	$1,298	z80a	4	64			
	OSBORNE 3	MS-DOS							
1986									
1987	OSBORNE 08	MS-DOS	3500 ERUO	80266	8	640		2	720
NOTE -	BOTH = CP/M AND MS-DOS								
	OSBORNE 08 THRU GERMAN DIVISION - NOT INCLUDED IN TOTALS								
	OSBORNE 3 LAST OSBORNE COMPUTER SOLD IN USA								
	SOME REFERENCES INDICATED EXECUTIVE & VIXEN COULD BE MS-DOS								
	OCC = OSBORNE COMPUTER COMPANY								
	THERE WAS SOME CONFUSION ON THIS DATA IN SOME REFERENCES								
	AS MIGHT BE EXPECTED IN SUCH A SITUATION								
REFERENCES	WWW.OLDCOMPUTERS.NET								
	WWWEN.WIKIPEDIA.ORG/SIKI/ibm_PERSONAL_COMPUTER								
	WWW.TECHMOTIVATOR.IITM.AC.IN								
	WWW.OLD-COMPUTERS.COM								
	WWW.ATARIMAGAZINES.OCM/CREATIVE/V10N3/24_OSBORNE_COMPUTUER_CORPORAT.PHP								
SUMMARY	4 COMPUTERS IN 3 YEARS 1981 TO 1983 =			1.3	COMPUTERS / YEAR				
	2 COMPUTERS IN 1 YEAR 1985 =			2	COMPUTERS / YEAR				
	6 COMPUTERS IN 5 YEARS 1981 - 1985 =			1.2	COMPUTERS / YEAR				
	SINCE TECHNICALLY OPERATED DURING BANKRUPCY - DID NOT GO OUT OF BUSINESS THEN								
	NOTE - ALL ARE PORTABLE, PERSONAL COMPUTERS								

TABLE 7

KAYPRO COMPUTERS 1983 TO 1990											
F. GADEK		COPYRIGHT	3/3/2008		SPEED	MEMORY	DISK DRIVES 5.25"		3.5" DISK	HD	MODEM
YEAR	COST	MODEL	KIND	OS	MHz	K	#	KB		GB	BAUD
1982	----	KAYPRO I	PPC	CP/M							
1983	$1,795	KAYPRO II	PPC	CP/M	2.5	64	2	191			
1983		KAYPRO IV	PPC	CP/M			2	390			
1983		KAYPRO 10	PPC	CP/M			1			0.01	X
1984		KAYPRO 4	PPC	CP/M	4		2	390			300
1984		KAYPRO ROBIE	DESKTOP	CP/M			2	260			300
1985	$1,095	KAYPRO 2X	PPC	CP/M	4		2	390			300
1985		KAYPRO "NEW" 2	PPC	CP/M	4		2	390			
1985		KAPRO 4+88	PPC	BOTH		256					
1985	$2,095	KAYPRO 16	PPC	MS-DOS		256					
1985	$1,595	KAYPRO 2000	LAPTOP	MS-DOS					X		
1985	$1,595	KAYPRO PC [10?]	DESKTOP	MS-DOS	4.77 / 8	768	2	360		0.02	
1986	$1,995	KAYPRO "1"	PPC	CP/M	4		2	390			300
	$1,995	KAYPRO 286	DESKTOP	MS-DOS	12						
1987	$4,995	KAYPRO 386	DESKTOP	MS-DOS	20						

NOTE -
KAYPRO I ONLY A DEMONSTRATOR MODEL
KAYPRO ROBIE ONLY CP/M NOT PORTABLE BUT DESKTOP
KAYPRO 2000 ONLY LAPTOP COULD RUN ON BATTERIES
BOTH = CP/M & MS=DOS OPERATING SYSTEMS = OS
PPC = PORTABLE PERSONAL COMPUTER - LUGGABLE NOT LAPTOP

BREAKDOWN
15 DIFFERENT MODELS IN 6 YEARS OR 2.5 MODELS / YEAR

10 PPC	OR	67	%
4 DESKTOPS	OR	27	%
1 LAPTOP	OR	7	%

9 CP/M COMPUTERS	OR	60	%
5 MS-DOS COMPUTERS	OR	33	%
1 BOTH CP/M & MS-DOS	OR	7	%

6 MODELS IN 1985 OR 40 %

5 PPC'S
1 LAPTOP
2 CP/M
3 MS-DOS
1 BOTH CP/M & MS-DOS

NOTE A CP/M MACHINE IN 1986 - USING UP OLD PARTS FOR $$$???

REFERENCES -
1987 FAULKNER TECHNICAL REPORT, INC
PC RESOURCE MAY 1987
WWW.EN.WIKIPEDIA.ORG/WIKI/KAYPRO

TABLE 8

COMPAQ PORTABLE PERSONAL COMPUTERS [PPC'S] IN 1980'S

	F. GADEK	COPYRIGHT					3/10/2008			
YEAR					SPEED	RAM		DISK DRIVES		INTERNAL
INTRO	COMPUTER	TYPE	COST	CPU	MHz	RAM K	MONITOR	#	CAP, KB	HD, MB
1982	FOUNDED									
1983	COMPAQ PORTABLE	PPC	$3,590	8088	4.77	128	9"	2	320	
1983	COMPAQ PORTABLE PLUS	PPC	$3,199	8088	4.77	640				X
1984	DESKPRO	DESKTOP	$8,086		7.14					
1985	COMPAQ PORTABLE 286	PPC				640				30
1985	DESKPRO 286	DESKTOP								
1986	COMPAQ PORTABLE II	PPC	$3,199	80286	8.00	256	9"	1	360	10 OR 20
1986	DESKPRO 386	DESKTOP	$13,000	80386						
1987	COMPAQ PORTABLE 386	PPC	$13,000	80386	20.00	2 MB				
1987	COMPAQ PORTABLE III	PPC	$4,999	80286	12.00	640	10" GAS PLASMA			
1989	DESKPRO 486	DESKTOP			25.00					
???	COMPAQ PORTABLE 486	PPC								

NOTE -	SOME REFERENCES DO NOT AGREE WITH EACH OTHER
REFERENCES	WWW.OLDCOMPUTERS.NET
	WWWEN.WIKIPEDIA.ORG/SIKI/ibm_PERSONAL_COMPUTER
	WWW.STASON.ORG/TULARC/PC/MOTHERBOARDS/C/COMPAQ-COMPUTER-CORPORATION...
	WWW.OLD-COMPUTERS.COM
	WWW.DIGIBARN.COM
	WWW.COMPUTERMUSEUM.LI
	WWW.THECOMPUTERMUSEUM.NET
	WWW.QUERY.NYTIMES.COM
SUMMARY	BETWEEN 1983 & 1989 OR 6 YEARS
	10 COMPUTERS %
	4 DESKTOPS 40
	6 PORTABLE PERSONAL COMPUTER [PPC] 60
	10 COMPUTERS IN 6 YEARS = 1.7 COMPUTERS / YEAR
	4 DESKTOPS IN 6 YEARS = 0.67 PER YEAR
	6 PORTABLE PERSONAL COMPUTER [PPC] IN 6 YEARS = 1 PER YEAR
NOTE	* ANOTHER PRICE FOR COMPAQ PORTABLE $2995
	* ASSUME PRICE FOR SIMILAR MODELS E.G. 2 DISK DRIVES, IF VARIATIONS
	* DID NOT INCLUDE MODELS WITH SLIGHT VARIATIONS E.G.. HIGHER SPEED
	* ALL ARE MS-DOS & IBM COMPATIBLE ALMOST 100%

TABLE 9

IBM PERSONAL COMPUTERS IN 1980'S

F. GADEK COPYRIGHT 3/10/2008

YEAR INTRO	DISCONT	COMPUTER	TYPE	COST	CPU	SPEED MHz	RAM RAM K	MONITOR	DISK DRIVES #	DISK DRIVES CAP, KB
1981	1987	IBM PC 5150	DESKTOP		8088	4.77	16			
1983		IBM PC XT 5160	DESKTOP		8088	4.77				
1983	1985	IBM PCjr 4860	DESKTOP		8088	4.77				
1984		IBM FIRST PORTABLE PC 5155 MODEL 68	PORTABLE	$4,225	8088	4.77	256	9"	2	360
1984		IBM PC AT 5170	DESKTOP		80286	6 TO 25				
1986		IBM PC CONVERTBLE	LAPTOP	$2,000	8088	4.77	256		2	720
1986		IBM PC XT 5162	DESKTOP	$4,000	80286	6 TO 25	640		1	1.2 MB
1987		IBM PS/2 MODEL 25	DESKTOP		8086	8.00	512		2	720
1988		IBM PS/2 MODEL 8573	PORTABLE		80386				1	1.44 MB

NOTE - IBM PORTABLE PERSONAL COMPUTER [PPC] LOOKED A LOT LIKE FIRST COMPAQ PORTABLE OF 1982 IDENTICAL TO IBM PC 5150 INTERNALLY

REFERENCES -
WWW.OLDCOMPUTERS.NET
WWW.EN.WIKIPEDIA.ORG/SIKI/ibm_PERSONAL_COMPUTER
WWW.COMPUTERMUSEUM.LI

SUMMARY
BETWEEN 1981 & 1988 OR 7 YEARS

	%
9 COMPUTERS	
6 DESKTOPS	67
2 PORTABLE PERSONAL COMPUTER [PPC]	22
1 LAPTOP	11

9 COMPUTERS IN 7 YEARS =	1.3	COMPUTERS / YEAR
6 DESKTOPS IN 7 YEARS =	0.86	PER YEAR
2 PORTABLE PERSONAL COMPUTER [PPC] IN 7 YEARS =	0.29	PER YEAR
1 LAPTOP IN 7 YEARS =	0.14	PER YEAR

NOTE - 386 COMPUTERS STARTED A DIFFERENT SYSTEM FOR IBM - PS/2 SO DIFFICULT TO COMPARE

TABLE 10

SUMMARY OSBORNE, KAYPRO, COMPAQ & IBM COMPUTERS EARLY 1980'S

F. GADEK COPYRIGHT 03/17/2008

COMPANY	YEARS FROM	TO	#	TOTAL # COMPUTERS	# COMPUTERS / YEAR	# PPC'S	%	# DESKTOPS	%	# LAPTOPS	%	ONLY CP/M	ONLY MS-DOS	% CP/M
OSBORNE	1981	1985	5	6	1.2	6	100					2	2	33
KAYPRO	1982	1987	6	15	2.5	10	67	4	27	1	7	9	5	60
COMPAQ	1983	1989	6	10	1.7	6	60	4	40				10	0
IBM	1981	1988	7	9	1.3	2	22	6	67	1	11		9	0

NOTE - FIRST IBM WAS BOTH CP/M AND MS-DOS
KAYPRO 4+88 WAS ALSO BOTH

YEARS WITH LARGEST # COMPUTERS OFFERED
OVER 5 YEARS - OSBORNE 3 OF 6 COMPUTERS IN 1983 = 50%
OVER 6 YEARS - KAYPRO 6 OF 15 COMPUTERS IN 1985 - 40%
OVER 6 YEARS - COMPAQ ONLY 2 IN EACH YEAR 1983, 1985,
1986 & 1987, SO 2 OF 9 = 22 %
OVER 6 YEARS - IBM ONLY 2 OF 7 COMPUTERS IN 1983 & 1986
SO 2 OF 7 = 29 %

ONLY INFORMATION COULD FIND ON DISCONTINUING MODELS -
IBM PC 5150 ONLY LASTED 7 YEARS
IBM PCjr 4860 ONLY LASTED 3 YEARS

TABLE 11

PLOT # COMPUTER MODELS PRODUCED EACH YEAR
BY 4 MAIN PPC COMPUTER COMPANIES EARLY 1980'S

F. GADEK, COPYRIGHT 03/17/2008

YEAR		1981	1982	1983	1984	1985	1986	1987	1988	1989	TOTAL
COMPANY	FOUNDED										
OSBORNE	1980	1		3		2					6
KAYPRO	1981		1	3	2	6	2	1			15
COMPAQ	1982			2	1	2	2	2		1	10
IBM	1889	1		2	2		2	1	1		9

NOTE - 1982 KAYPRO I WAS ONLY A DEMONSTRATION MODEL

[NOTE – REFERENCES TABLES 6 TO 9]

TABLE 11 - CHART / GRAPH 1

[COPYRIGHT F. GADEK 03/17/2008]

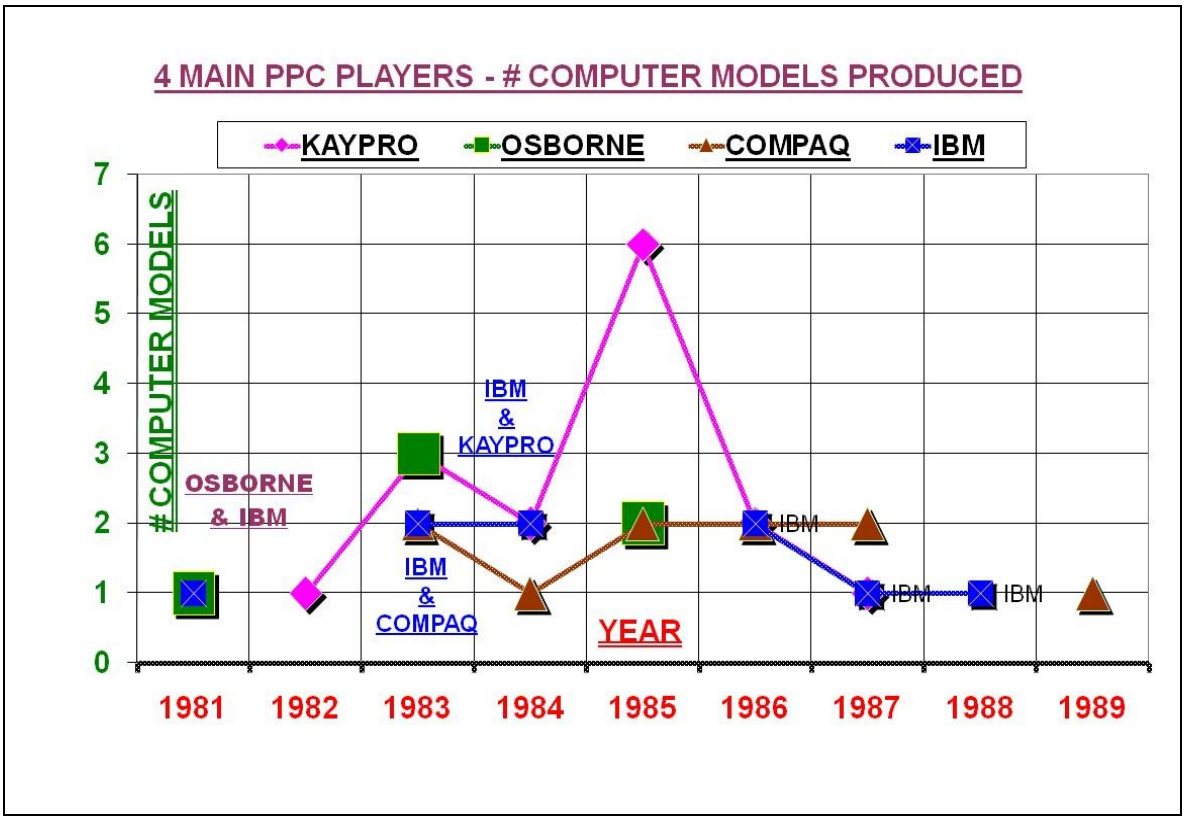
4 MAIN PPC PLAYERS - # COMPUTER MODELS PRODUCED
KAYPRO
OSBORNE
COMPAQ
IBM
COMPUTER MODELS
7
6
5
4
3
2
1
0
OSBORNE & IBM
IBM & KAYPRO
IBM & COMPAQ
IBM
IBM
IBM
YEAR
1981
1982
1983
1984
1985
1986
1987
1988
1989

TABLE 12

SOME KAYPRO EXPENSES		
F. GADEK	3/10/2008	COPYRIGHT
DATE	AMOUNT	ISSUE
KAYPRO REPAIR		
12/26/1984	$45	
2/1/1985	$48	DISK DRIVE
3/30/1985	$37	
4/30/1985	$196	
5/2/1985	$42	SOLDER JOINTS
1/14/1986	$42	DISK DRIVE
5/15/1986	$175	DISK DRIVE & SOLDER
TOTAL =	$585	
COST / YEAR =		$195.00
COST / DAY =		$0.53
COST "TODAY'S DOLLARS" / DAY = ABOUT $1.25		
OTHER		
12/26/1984	$35	OKIDATA PRINTER REPAIR
4/9/1985	$20	NULL MODEM CABLE
3/14/1988	$200	SALE KAYPRO II
NOTE -	DOES NOT INCLUDE MODIFICATIONS	
		& UPGRADE EXPENSES &
		OTHER ITEMS
ALL REPAIRS DONE LOCALLY BY ONE SHOP		
S & R COMPUTER ASSOCIATES OF GREENVILLE		
	N.C. ADVERTISED KAYPRO REPAIRS	
	AT $75 + PARTS FOR KAYPRO II'S	
	PLUS SHIPPING / PACKING / HANDLING	

TABLE 13

OUR COMPUTERS SINCE 1980'S				
	F. GADEK COPYRIGHT		3/3/2008	
		ORIGIINAL		
YEAR	COMPUTER	COST $	OS	#
PORTALBLE, PERSONAL COMPUTERS [PPC]				
1983	KAYPRO II	$4,100	CP/M	6
DESKTOPS				
1993	GATEWAY 4DX2-50	$5,000	WIN 3.1	1
1993	GATEWAY 4DX2-66V	$5,000	WIN 3.1	1
2002	COMPAQ PRESARIO 5000	$2,000	WIN ME	1
2004	GATEWAY 500 SE	$1,400	WIN XP	1
2006	COMPUTER PALS	$2,500	WIN XP	1
2007	COMPUTER PALS	$2,000	VISTA	1
LAPTOPS				1
1991	TOSHIBA T1000XE	$1,600	WIN 3.1	1
1997	TOSHIBA SATELLITE 225 CDS	$1,900	WIN 95	1
2006	COMPUTE PALS	$1,600	WIN XP	1
2008	COMPUTER PALS	$1,900	VISTA	1
TOTAL =		$29,000.00		
AVEARAGE / YEAR =		$1,160.00		
NOTE - 6 KAYPRO II'S MODIFIED &				
	UPGRADED TO KAYPRO "8" ' S			
	DOES NOT INCLUDE COSTS OF MODIFICATIONS			
	& UPGRADES			
	ORIGINAL COSTS APPROXIMATE & CAN INCLUDE			
	OTHER SUPPORTING ITEMS - PRINTER,. SOFTWARE, ETC.			
	16 OVER 25 YEARS =	1.6	PER YEAR	
	WITHOUT 6 KAYPROS			
	10 OVER 14 YEARS =	1.4	PER YEAR	
	OVER 25 YEARS -			
	6 PPC	38	%	
	4 LAPTOPS	25	%	
	6 DESKTOPS	38	%	
NOTE - COMPUTER PALS - LOCAL BUILDER & SELLER				
NOTE - ALL COMPUTERS FOR 2 PEOPLE - MAN & WIFE				

TABLE 14

[COPYRIGHT F. GADEK 03/17/2008]

BRIEF "SPECS" OF KAYPROS

K II [2]	K IV [4]	K "8"
2 SSDD	2 DSDD	4 QUAD
190 K	380 K	784 K

TOTAL DISK DRIVE STORAGE

380 K	760 K	3136 K
0.380 MB	0.76 MB	3.136 MB

EQUIVALENT TO # SSDD [190 K] DRIVES

2 4

EQUIVALENT TO # DSDD [380 K] DRIVES

2 " 8 "

[380 K DSDD X " 8 " = 3040 K]

SPEED MHz

2.5	2.5 [4]	5

TABLE 15

[COPYRIGHT F. GADEK 03/17/2008]

TO GO TO A KAYPRO IV [4] FROM A KAYPRO II [2] -
QUITE INVOLVED - SOLDERING WIRES, ADD CHIPS, DESOLDER CHIPS, ADD SOCKETS, ETC.
DEPENDING ON "VERSION" OF KAYPRO II [2] HAVE

KAYPRO IV [4] TO KAYPRO "8" -
JUST ADD A CHIP - SOCKETED

NATURALLY BOOT DISK HAS TO BE MODIFIED ACCORDINGLY

MICROCORNUCOPIA DIRECTIONS & DIAGRAMS EXCELLENT

BUT SOME SPECIAL TOOLS, ABILITIES, PATIENCE & DEXTERITY ALSO REQUIRED

TABEL 16

[COPYRIGHT F. GADEK 03/17/2008]

TABLE 17 – MY OTHER COMPUTER RELATED MODIFICATIONS, UPGRADES, MAINTENANCE, REPAIR, ETC.

In order to remain as **self sufficient** as possible and to minimize expenses to outside organizations, the following are some of the main projects that were successfully undertaken.

To some, they may seem trivial. To others they may not, but this can **encourage** them that they can do it too with the proper research and tools!

Many computer suppliers provide extensive and well detailed directions for many “user” upgrades, maintenance and repair projects.

This brief list also indicates what some users should expect with respect to trying to **extend the useful life** of their computers by keeping their computers as current, and compatible for as long as they can, in order to **conserve resources** [e.g., not only funds, but time, learning new software / computer systems, etc.].

This was inspired also by the mounting expenses for the Kaypros [Table 12], even though the Kaypros were very reliable systems after the initial "shakeout" periods, particularly after the modifications and upgrades, mostly due to the expected **heat related issues** by pushing the system beyond what it was originally designed for.

1] Setup a simple electronics lab for computer and other electronic projects.

2] A separate room was also setup for most of the computers acquired and to store extensive accumulated documentation, software, parts, supplies, etc.

3] All computers and peripherals were setup and maintained by me. No outside services were used other than technical support from the computer manufacturers.

4] Gateway - added second hard drive which required BIOS changes as per their directions.

5] Reinstalled operating system and all software on Compaq and Toshiba Satellite laptop.

6] Toshiba Satellite laptop upgraded from Win 95 to Win 98.

7] Added additional CD drives and DVD drives to Compaq and Gateway 500 and 3.5" drive to VISTA.

8] Add more RAM to Toshiba Satellite laptop, Compaq and Gateway 500.

9] A] Simply adding more RAM to one computer that will **remain nameless** [since they really and sincerely tried to help], became a **very labor intensive project** due to the failure of all but one, the final technical support person at the highest level, who knew that more than 512 K of RAM could **not** be added to that system!

B] FedEx was kept busy delivering replacement chips and other parts, including the main board, since the computer was still under an extended warranty. Phone calls to Technical Support lasted hours on

many occasions where numerous “fixes” were “walked thru” verbally. It should be noted that they were getting paid for all of this, I was not. This project lasted several weeks!

C] Certainly, the overall expense to this company for this project was <u>well beyond</u> the then current value of that older computer. Just sending a replacement computer was not accepted as an option by this company.

D] It also alerted me that this company had some <u>serious management issues</u> at much higher levels than Technical Support. This company is now just not what it once was – a leader in the computer industry.

E] This incredible experience by good Technical Support and a good computer company, **<u>only reinforced the need to be self sufficient.</u>**

10] Registration cleaning using appropriate software, along with regular other more routine maintenance activities.

SOME PICTURES

MANY MORE EXCELLENT COLORED PICTURES ARE ON THE VARIOUS WEBSITES NOTED ABOVE

THEY WERE PLACED AT THE VERY END OF THIS PAPER FOR YOUR CONVENIENCE IN FLIPPING BACK TO SEE THEM AS YOU READ THE TEXT

THEY WERE NOT INCLUDED IN THE TEXT IN ORDER TO BETTER KEEP THE OVERALL FLOW OF THE ARTICLE MOVING SMOOTHLY AND QUICKLY

ALSO, IN CASE THERE WERE ANY FORMATING / PRINTING / ETC. ISSUES THAT MIGHT DEVELOP WITH CERTAIN SOFTWARE SYSTEMS ACCESSING THIS PAPER

SO FOR THESE REASONS, MORE PICTURES WERE NOT INCLUDED

PICTURES OF –

ORIGINAL 1981 IBM PC 5150 DESKTOP

3 FIRST EARLY 1980 PORTABLE, PERSONAL COMPUTERS [PPC]

1981 OSBORNE 1
1982 KAYPRO II
1982 COMPAQ PORTABLE

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PICTURES OF –

1983 KAYPRO II / 2 & 4'S MODIFIED / UPGRADED TO KAYPRO "8" 'S

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ALL 6 MODIFIED KAYPROS TO KAYPRO "8" 'S

FRONT OF A KAYPRO "8"

MAINBOARD OF A KAYPRO "8"

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IBM
IBM
IBM
PC5150

WOW! Did this computer change the computer industry? You bet, it wiped out all the CP/M based computers and everyone jumped on the PC compatible bandwagon. Apple started to slide as the IBM name instantly brought custers over to IBM. 5150 introduced in September of 1981. It had only 16Kb RAM and used an audio cassette to load and save data. Floppy drive was optional and the 5Mb hard drive was yet available.

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OSBORNE COMPUTER CORPORATION

Osborne Computer
Osborne 1 (gray)

Osborne 1 introduced in 1981. Conceived by Adam Osborne and designed by Lee Felsenstien the Osborne became an instant hit in the PC market. Complete with integrated 5: computer screen and an optional battery pack for true portability. Weighs only 24.5 lbs.

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KAYPRO
Kaypro
Kaypro II

Designed to go after Osborne, the Kaypro II had 64K of RAM, dual Tandon SS/DD 5 1/4" Floppy Drives, plus a huge 9" green screen (Osborne only 5" screen). It is said that "2010: A Space Odyssey" was written on a Kaypro! Key advantage was software including Wordstar, Perfect series and more.

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Compaq Portable announced November 1982 and started shipping in January of 1983. Claim to fame was portability and the compatibility with the IBM PC BIOS.

1983 KAYPRO II / 2 & 4'S MODIFIED / UPGRADED TO KAYPRO "8" 'S

ALL 6 MODIFIED KAYPROS TO KAYPRO "8"'S

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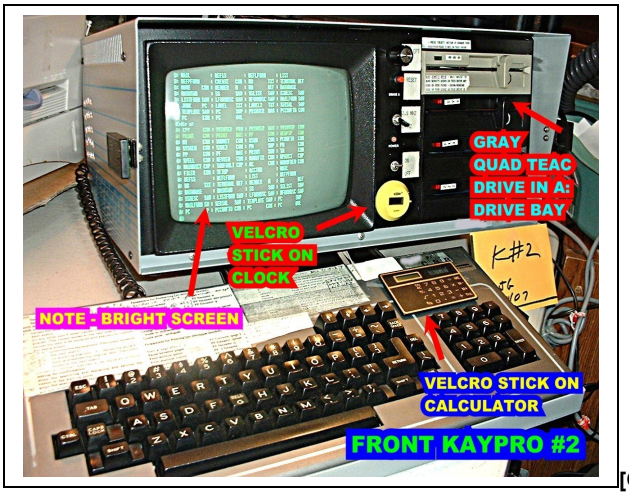
FRONT OF A KAYPRO "8"



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MAINBOARD OF A KAYPRO "8"

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