



# Conference Report

## Introduction

The HP Handheld Conference for 2003 was held in Newport Beach California to be physically close to long time (25 year) contributor, Joseph K. Horn. Joseph's "normal" life has really changed in the last two plus years and it doesn't allow much time to participate in regular HP User Community, HPUC, meetings. Many members of the Community discussed this at the Conference last year in London and they felt that it would be fun to hold the Conference in Orange County if Joseph would attend. He promised that he would and he even worked very hard as a member of the Conference Committee as Conference Web Master. With this idea as motivation, I agreed to take on the Conference this year. This meant taking on the financial responsibility as well as the speakers schedule and proceedings.

This is the 27<sup>th</sup> conference (the list provided on the web page is missing one that was held in The Netherlands, we will have to get this corrected) of dedicated HP users. From what I have heard so far - this is being written on the weekend following the Conference - it was a great success. HHC Conference discussions take place at a web page maintained by Eric Smith at: <http://www.handheld.org/>. If you would like to participate in *personally* sharing your HP user experience - as opposed to sitting in your PJ's and being virtual on the Internet - you should sign up to participate in HHC discussions. The difference between these two activities is that we act as a group and not as individuals. While the former depends on the latter the synergism of a group is much more effective and productive in achieving the goals of the ideal machine running ideal applications solving every problem with maximum precision at lightning speed. In other words, *actions speak louder than words*.

## Initial Reactions

Here are a few comments read on the HHC list during the week following the Conference.

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9/24/03 from Eric Smith. Bruce Horrocks wrote:  
> Or is there another list that I should be looking at?

HHC conferences are discussed on the HHC mailing list:

<http://lists.handheld.org/mailman/listinfo/hhc>

There hasn't been any post-conference discussion on the list yet. I guess the attendees aren't yet recovered from the shock and awe.

9/24/03 from Eric Smith. There was apparently some discussion on Saturday morning about Dallas as a potential site for an HHC 2004 conference. I'm not opposed to that, especially if there is strong local support for it. As another alternative, I'd be willing to put together a conference in the San Jose, California area.



San Jose does have an international airport (SJC), and is also not far from two others, San Francisco (SFO) and Oakland (OAK).

Local attractions include the Tech Museum, the Children's Discovery Museum, the San Jose Museum of Art, Lick Observatory, and the Winchester Mystery House:

<http://www.thetech.com/>  
<http://www.cdm.org/>  
<http://www.sjmusart.org>  
<http://www.ucolick.org/>  
<http://www.winchestermysteryhouse.com/>

More info from the San Jose Convention and Visitors Bureau:

<http://www.sanjose.org/>

Of course, there are lots of other attractions in the area. San Francisco and Santa Cruz are less than fifty miles away. I'd strongly recommend the Exploratorium in San Francisco:

<http://www.exploratorium.edu/>

I'd also be willing to volunteer help with organizing a conference anywhere else on the west coast, such as Seattle, Portland, Corvallis, or San Diego, if anyone else is interested.

**9/24/03** from Ted Kerber. I have an apartment in San Jose, work for the City of San Jose, etc. I would be more than happy to help with getting one set up here. It would be relatively simple to set up a list of hotels near the airport with sufficient space similar to what we had last weekend, and most give group prices.

The city also has excellent restaurants of different types, etc. One good one with a great variety on the menu is "Cozy" on the corner of The Alameda and Newhall . . . breakfast, lunch and dinner, good prices and great service (and it's one ramp away from the airport). Traffic here is much more friendly than S.F. The weather, this time of year, is upper eighties, little or no fog, light breezes.

By the way, San Jose is now the second largest city in California, bigger than S.F., site of the first Pueblo established in California, Capitol of Silicon Valley, surrounded by electronic technology, etc. etc. Keep me in the loop if there is interest . . .

**9/24/03** from rjn. Hello HHC Fans,

Thanks Ted and Eric. You both have been dedicated HHCers.

Obviously a conference of this type is very difficult for a single person to handle. Since I was financially responsible for the conference this year I had a vested interest in all aspects of it. I haven't done the finances yet, but the costs appear to be within my tolerance of plus or minus \$200 of the income. If there is more income, there will be "seed" money for next year. If less, it is no problem as I agreed to do it.

The final \$45 donation amount was determined the day before the conference started. I still have the proceedings copy costs to determine for a final cost tally. Officially, 43 attended, four from HP leaving 39 from the HPUC. Of these, 29 ( *not* including the HP folks), paid the \$45 donation for the total income of \$1,305. The reason for the disparity is the committee and speakers did not pay. As far as I know (I



don't have the list handy) two speakers paid anyway as a way of contributing. See details of this policy on the HHC 2003 web page.

**For HHC 2004 the following are critical.**

1. **The dates:** This is easy as September has worked quite well. Just pick the first weekend after the 15th (to be after the summer season) and verify that there are no conflicts with national holidays.
2. Determine the person who will be **financially responsible**.
3. Select the hotel and make the **financial commitment**.

Having everything in one location is very efficient and keeps the group together. A hotel near a large airport is best. We will always have someone who will be divisive and want to organize a group to go to a different restaurant of THEIR liking, but that is people.

If a group or individual could take care of 2 & 3 above I would consider taking on the Speakers, schedule, and *maybe* the proceedings. The proceedings really needs to be done by one person or a physically close team because of the zero time between the proceedings contents and the Conference itself. The last minute copy costs at Staples was at an expensive 7 cents per page. This assumes that one of the objectives of the Conference is to record the work of the community. The pride of being published is one of the few rewards of preparing a talk.

I am pleased that there is continued interest, but it is important to note the moderately steep downward slope of the curve of attendance. While there are a lot of people who talk about having an interest the number that actually attend is what the income is based on. I don't think we should be a little less "sharing" to those who just sit at home and "talk" on the Internet, but attendance is a sign of those who are really serious.

I don't have the results from last year as the HPCC tends to be less public on the numbers, but all of the data I am aware of show a continued downward slope. I had hoped for a larger attendance (because of the new machines) but it didn't materialize. Just 5 to 10 more attendees puts the income into the "workable" region since the speakers overhead (of not paying) is almost a constant "cost". One way to help in this regard is to have the speakers and the committee pay half. The hotel did not charge us on Friday for four hours of tables and the space we used to assemble the binders, for example. We got by especially cheap this year. Orange County is considered an expensive area, and the economy should be better next year and costs tend to go up.

I will provide more details and some specific juicy tidbits in the Conference report. I have lots of notes. Everyone who attended should post their reports and reactions. That should be at least 38 of you. I am especially interested in your feedback.

A detailed report of the conference last year is in the HHC 2003 Binder. I want to thank all of you who participated. I think that we accomplished all of our objectives and we certainly continue to have a proper (actually a new and exciting) relationship with HP. Those who attended know what I am talking about, but there is more, as time will illustrate.

X <> Y, Richard

9/25/03 From Richard Schwartz

The conference was great. HP presented their progress toward recovery. They want to take back the financial market before going after the high end, and they SAY they are going to listen to users. They have made progress and are starting to introduce (pseudo) new models like the 12 platinum.

Joe presented his greatly cleaned up algorithm for converting decimals to fractions, and everybody seemed to understand it; it wasn't at all hard to do. HP is encouraged to incorporate it.

Many other interesting talks and a steak dinner that left me in the maternity ward of the local hospital.

I don't know what it will be next year... Texas, or Holland? From your point of view, Texas is only an inch from here (on the map). I can drive there in two days... except that I will stop to see the sights and commune with the Navajo and Apache brothers in Arizona and New Mexico and to visit my crypto-Jew brothers at Santa Fe. I made this trip two years ago: when you cross the border from New Mexico into Texas, the radio changes. There are no more news programs; everything is blacked out on the radio except football and bible preaching.

9/25/03 from Ted Kerber. There is a possible opportunity for one of you gentlemen who, unlike myself, understand this stuff . . . surveyors connect their (currently HP49GX) calculator to their survey instruments by way of a serial cable using RS232. Current cables contain one custom end fitted to the instrument and the other a 4-pin HP.

A device will be needed to make the conversion from the USB, adding the RS232, to allow use of the existing cables (it is extremely doubtful that any new cables will be manufactured, let alone a converter), by the previous manufacturer since the cables are still available. If anyone is interested in pursuing this, the item would probably sell for a reasonable price (the cables currently market for between \$100-\$140). Another possible product would be an environmental case (similar to the ones in the raffle) with the RS232 built into it.

ALSO, I am needing more information on the SD cards for the 49g+. I am looking for a card that is available at bulk prices, small is fine (actually it can be a 256K flash card and be big enough for an application pac). What I've found so far is a variety of cards with different configurations, etc. and haven't the slightest idea of which one I need. I would probably prefer to deal with a wholesaler than a dealer.

Ted J. Kerber, PLS Software by D'Zign

9/25/03 from Ted Kerber I don't see any problem with the financial commitment and responsibility, and could assume those (subject to Phyllis's approval OF COURSE) if it were held in San Jose . . . I know that I would need someone else to handle (again) some aspects . . . Richard just mentioned a few, and there is always the website to be built and maintained

9/26/03 from Ted Kerber. Good morning Richard (*Schwartz-rjn*). . . Haight-Ashbury and Santa Cruz U are both over 50 miles from San Jose, but I think they still run shuttle service. Depends on your choice of nightlife. At the same distance (no shuttle) there is the great variety of good (old) restaurants in North Beach, all kinds of good plays within about a 7-block radius in downtown SF. You get an attaboy for Cisco though.

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## The Schedule - Saturday

<b>Time</b>	<b>Event/Person</b>	<b>Description</b>	<b>Binder Section</b>
8:00 AM <sub>15</sub>	Registration set up	David Shier, Richard Schwartz.	Admin
8:15 AM <sub>45</sub>	Registration starts	Donation \$49, get Conference materials.	—
9:00 AM <sub>10</sub>	Richard Nelson	Announcements.	Admin
9:10 AM <sub>50</sub>	Attendees	Introductions.	—
10:00 AM <sub>20</sub>	Jake Schwartz*	PPC CD 4 - The Conferences, PPC TN's Australia	Talks
10:20 AM <sub>20</sub>	Break - Turn in What Is this?	Introduce yourself to at least one new person.	—
10:40 AM <sub>30</sub>	John Cadick & Jeff Bronfeld	The Writing of Useful 48 Utilities for Power Systems Engineers.	Talks
11:10 AM <sub>25</sub>	Marc Staps*	Usage of Calculator Emulators - Such as Power48 on a Palm	Talks
11:35 AM <sub>25</sub>	Richard Nelson, attendees	Special Products.	Talks
12:00 PM <sub>90</sub>	Lunch	On your own, use restaurant list.	Admin
1:30 PM <sub>30</sub>	Fred Valdez	Strategic Directions of Our Business.	—
2:00 PM <sub>45</sub>	Tony Jones & Cyrille de Brebisson	What's Happening Now?	—
2:45 PM <sub>60</sub>	All of the HP folks	HP Forum Q&A. A rare opportunity to "Ask HP".	—
3:45 PM <sub>15</sub>	Break	Introduce yourself to a second new person.	—
4:00 PM <sub>45</sub>	Joseph K. Horn*	Calculator Fractions: A Whole New Approach	Talks
4:45 PM <sub>45</sub>	David Shier*	Wireless Data Comes of Age - finally!	Talks
5:30 PM <sub>30</sub>	Adjourn for dinner	Take a few minutes to relax before dinner.	—
6:00 PM <sub>150</sub>	All Attendees	Conference Dinner, Hosted by HP in the Hotel.	—
8:30 PM <sub>open</sub>	TBD	Unscheduled special demonstrations, and presentations, etc. - <i>the detailed serious stuff.</i>	—
10:00 PM	Conference room closed/locked.	Drag off to bed, we don't start as early on Sunday.	—

We generally kept the schedule order but not always the allotted time. Some people get a bit upset at this and I hope that a moderate compromise was maintained throughout the conference. If there is one thing I have learned is that when *anyone* gets talking about a subject they are passionate about, they will always fill their time slot. In fact, they will usually run over their time. Some people will become very vocal and complain about this, but if you pay attention, you will find that these people are just as human as we all are. Still, all speakers had adequate time to speak, and I did not notice people wondering out of the room during the presentations. This conference, as with most, once again emphasizes the need for time for the attendees to spend together talking about their special interests. Longer breaks, and social activities such as the Friday dinner and Monday breakfast are important. Many of us don't see each other except for these conferences.

I will follow the schedule and comment on the various talks and activities. We always run out of time for is the Introductions (another example of everyone enjoying talking about their passion). I usually plan at least one minute per person. Paul Hubbert took individual "mug shots" of everyone and these will be on the Conference CD. They did this in Chicago for HHC 2001 and it really helps to identify contributors, as many of us come and go over the years, and we don't readily connect the names with the faces. More on returning faces later.

The first Saturday talk was by Jake Schwartz who covered his CD making project. He showed the majority of what is now done and planned for the complete PPC CD No. 4. What a rich international history we have. With the Internet, distance is much less a hindrance of our being a "group." Everyone has Jakes CD in right the pocket of his or her proceedings.

We had three (actually four) contests during the conference. The first one was the "What is This" or "Guess This" contest. Wlodek was the winner. I think that we are running out of good items for this contest so perhaps a four conference run for this activity is it. We have a nearly year to think about it though.

The second Saturday talk was an example of a surprising application of the HP48, field calculations in the Power Utilities Industry. Because of the unusual environment, (Intense electric and magnetic fields) the more conventional palmtops and especially the laptops just don't function reliably. The smaller size and flexible computational power of the HP48 and perhaps the HP49G+ works very well in this application. See a sampling of the slides John and Jeff used. John Cadick, one of the two speakers of this session, suggested that because they do training sessions as part of their business that it would be easy for them to set up the facilities for HHC 2004.

One of their "offices" is in Dallas Texas and they could possibly help with a conference. This is what was referred to on the HHC List discussions.

Another issue that John brought up was the recent news release from the National Council of Examiners for Engineers and Surveying, NCEES. A copy of the News Release is in the MISC section of the Conference Proceedings along with his

**Do we use handheld calculators?**

The following memo was sent to all engineers at a major New York electric utility in the late 1970s:

"Company management believes that these 'hand-held calculating devices' are a fad and will not last. Consequently the company will not purchase calculators for employees."

**NOTE:**

Evidence in the on-going investigation of the recent blackout in the northeastern United States seems to suggest that the design calculations for the system were done with a TI calculator.

We now return to the program . . . .

response. In the press release is a list of banned calculators for the exam schedule for 2004. How well is an organization that is testing professionals to insure that they are being properly trained and educated in the use of new technology, doing its job, when that very technology is being ignored by them? Of course, all of this is silly because the real issue is politics. While the politicians continue to build their empires, we must be aware of their silliness and take action when we can. This material is provided as an awareness service. We went through this with the high school level PSAT and SAT exams when TI was the only "approved" maker of acceptable exam calculators. If the "public" does nothing, this kind of thing will happen. Related to this issue is the topic of Blue Tooth that Dave Shier covered in his talk. Read more on this subject later.

The third talk by Marc Staps reviewed the argument for emulating the calculators on a PDA. While the newer higher resolution machines certainly make for a better emulation, the issue is a most complicated one. The fact that most users only want to carry a single machine is a vital issue that every manufacturer has to deal with. This issue was one of the "themes" of the conference. The emulations are exact with the actual ROM code of each machine being run. With the faster processors used for the PDA's, the emulations are faster than the machines themselves. Virtually all of the HP high-end machines of the last 20 years are available in emulation form. Not only do you have a regular PDA with all of its text, touch screen, and communication capabilities, but you may also have an HP-41, 48, or 49 in all their variations as well. The actual use of the calculator on the PDA, however, is not as convenient as using the machine itself. It is not an easy choice, but it is an important on going option and a "problem" for everyone involved with handhelds - manufacturers and users alike. Marc also emphasized this point by mentioning the Casio ClassPad 300 as an example of how at least one calculator manufacturer is including more of the features and attributes of the PDA in a calculator. We learned more about this on Sunday with Brian's and Wlodek's talks.

I skipped my presentation - no paper prepared - on "Special Products." This allowed the schedule to catch up. The primary point I wanted to make is third party products and how the "new" HP was going to deal with them was made during the exciting HP session after lunch.

During the 90 minute lunch period we all walked to one of the many close food places. The extended lunch period allowed everyone to socialize and get caught up on all the personal toys and projects that we are involved with during the year. This time also allowed us to make copies at Staples, right next to the hotel, so additional handouts could be added to the proceedings binder.

Saturday afternoon started with HP. Fred Valdez was "on the road" and could not make his presentation. Lee-Khuan filled in for him. Fred did join us for dinner and he stayed for, and participated in the evening sessions right to the very end. In fact, we had HP people with us throughout the Conference and I am very sure that anyone who had a point to make or a question to ask was able to do it.

The HP presentation was very unusual and historical in its nature. As we were in a "confidential mode" I won't go into details as everyone who attended will remember the details. All of our questions were answered with an honesty and frankness unheard of in past conferences. The relationship being established with the community was discussed and we are working with HP to helping the HP user get the information and services they need under the new HP Business Model.

I saw and heard about several very interesting ideas for third party projects being discussed during the Conference. The excitement and enthusiasm of the past was being reborn.

A full Q & A session with Tony, Cyrille, and Lee-Khuan provided everyone the opportunity to "vent" their frustrations, get honest answers, and obtain a realistic idea of how things are going to work for the future. I will have more to say on this later.

Joseph Horn presented his new PDQ Algorithm for converting decimals to fractions in such an entertaining and clear way that he was overwhelmingly voted best speaker. He explained how every calculator follows the classical continued fraction approach - illustrated with many different Casio, TI, and HP machines - and why they give wrong answers, miss correct answers, and are often very slow. He provided dozens and dozens of examples and explained why the method presently used is short of ideal. It is unfortunate that his great graphics and 49 screens are not part of his seven-page paper. Perhaps we can gather this material for the follow-up mailing that every attendee will receive. Another aspect of Joes paper is the references he provides not only from our community - I am amazed how much we have published on this subject - but from the academic math community as well. Joe showed the PDQ algorithm "to the world" for the first time at the conference. He will give it to HP under two conditions.

- (1) That they use it, and
- (2) that they *do not* license it to others.

An attendee suggested a third condition. That Joes name is attached to it. Joe did not agree. It is a gift to us of at least 15 years of work on the "problem." This is a good example of how we as a community are able to contribute to the betterment of HP machines.

There is one additional aspect of this topic. Since I have looked over Joes shoulder for all these years I knew that he didn't describe all of what PDQ has to offer. I asked him about it afterwards and his reply was that he was not fully prepared. This aspect is implied in the tags he used with his answers and I am sure it will be detailed soon. It was (in part) in an email I received as I was writing this. It will be exciting to see how the math community receives this information. That "process" is now taking place. I will especially be interested in how the "professionals" react to an "amateur" effort.

Here is a follow up explanation from Joseph. "Final notes: The PDQ algorithm USES the limitations of the platform it's running on, rather than suffering from them. In fact, it DEPENDS upon them. Therefore, its results will differ on each platform. This is in keeping with the HP philosophy, "What you see is what you have." If the user inputs 3.14159265359 into PDQ on a 12-digit-rounded HP calculator, then he is asking "What is the best fraction ON THIS MACHINE for EXACTLY THIS INPUT?" In other words, absolute accuracy and completeness is guaranteed for the input AS GIVEN, not as "intended". This will cause headaches for TI, Casio, Sharp, etc., if they try to implement the PDQ algorithm, since their calculators all have "hidden digits" so that the user is never really sure what he input, or what the output really is. I lose no sleep over that. ;-)"

We allowed as much time as possible for the HP Forum and as a result, the last talk of the day was carried over to Sunday. HP hosted the Saturday evening dinner and we reconvened at another room set up for the dinner. Fred Valdez from HP arrived for the dinner and he spoke to the group. I made an announcement to present Joseph with a plaque. I was about to reach into my bag for the second part of the gift (provided by HP) when Joseph mentioned that he had something for me.

Dave Shier, also a member of the Conference Committee, had to explain. I had send an email to everyone (we are seven on the Committee) except Joseph suggesting a special plaque. As usual great discussion ensued and when it became close to Conference time action had to be taken. Unknown to me, Joseph had

also sent an email to everyone but me with a similar suggestion. Ted Kerber was suggested as someone who knew where the plaque, now plural, could be made, and he was asked to have them made. Dave felt compelled to explain this to everyone because of the bewildered looks on our faces.

Of course I had to remark that the photo of the calculator was just not good enough and then gave Joseph the machine. I believe "No way" was his response. This whole activity was especially nice because Joseph's "boss", the Abbot, was sitting between the two of us. I am sure I speak for Joseph as well when I say a great thank you to you all. See images of the two plaques on the next page.

These annual get-togethers we call HHC's always amaze me on how things come together. No matter how you want to plan them, they seem to take on a life of their own. One of the objectives of an HHC, as a "snapshot" of the state of the HPUC, is to provide an inspiration for projects that don't have a formal schedule. Wlodek updated his HP book, which is published by Guy Ball. Guy came to the dinner to deliver some books to Wlodek. See the books on the next page. Wlodek also lugged a stack of the book, *RCL 20*, prepared in London for the Conference last year. Interested attendees could buy the books saving the time and shipping from the UK. This also offers an opportunity to get them autographed as well. Another HP enthusiast, Louis Skelton also came to meet Guy and we talked. I met Louis at EduCALC many years ago when he was looking for HP machines and manuals. He has built an amazing collection - actually two collections now - of all of HP calculators including all significant variations. I asked him to stay and tell us about his collecting experiences. He just happened to have a CD of his photos of his collection and we all enjoyed seeing machines many have only heard about. The HP folks were very impressed. The HP Corporate museum is even seeking machines from Louis to complete their collection. What is especially interesting is that Louis is a true collector, never spending more than a few dollars for his fantastic finds. He builds his collection by trading (up) machines and accessories with other collectors. In this way, he never spends even near 10% of the collectors price of any machine. His approach is unlike many of those who collect calculators and do so by just throwing money around. The rest of Saturday evening was spent with Fred, Tony, and Cyrille answering questions and listening to suggestions. Between the HP forum in the afternoon, and the Q & A in the evening, there was a good solid five hours for everyone to complain, ask questions, and get up to speed on the new HP.

## The Schedule - Sunday

The formal schedule is reproduced below. Dave Shier started the talks because of the additional time given HP on Saturday.

<b>Time</b>	<b>Event/Person</b>	<b>Description</b>	<b>Binder Section</b>
9:30 AM <sub>10</sub>	Conference reconvenes	Announcements, schedule changes, etc.	Admin
9:40 AM <sub>40</sub>	Peter Boniface*	How I Use The 48 In Academia.	Talks
10:20 AM <sub>40</sub>	Ted Kerber*	HP49 Surveying Applications Issues.	Talks
11:00 AM <sub>15</sub>	Break - Turn in New Contest entry. (Cross Word Puzzle)	Introduce yourself to your third new friend.	—
11:15 AM <sub>45</sub>	Brian Maguire	Is Pen Input the Way of the Future?	Talks

Sunday Schedule continued on page 11.

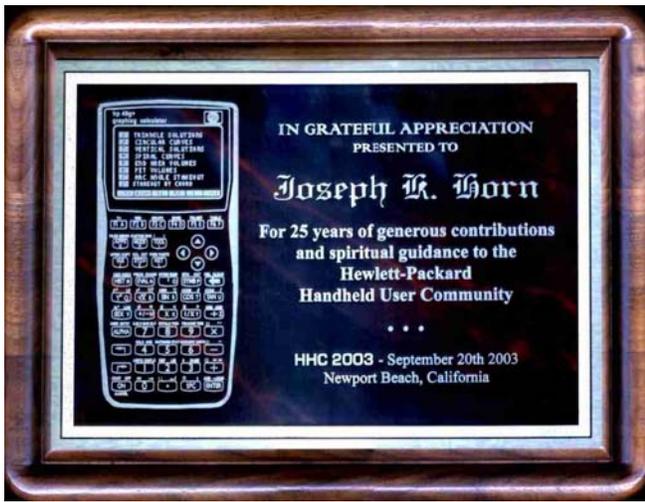


Fig. 1 — Plaques received during the Conference dinner, our thanks to all. the first item in the display is Triangle solutions.

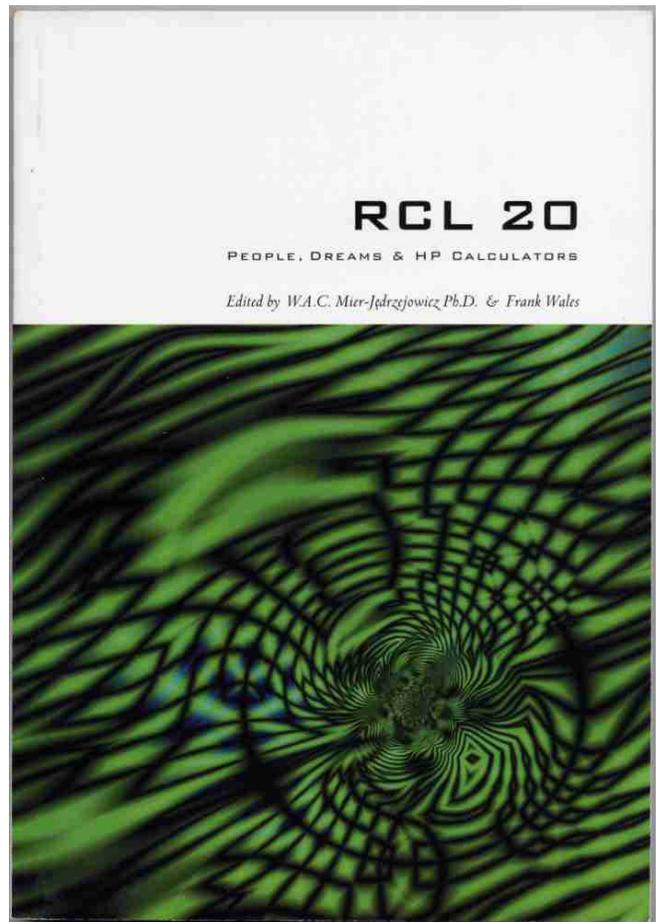
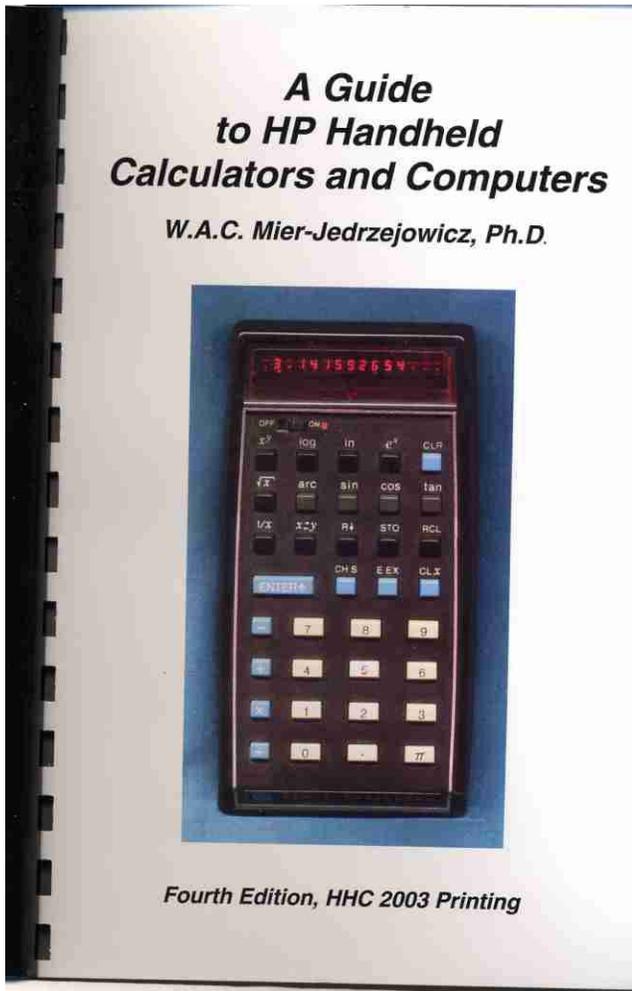


Fig. 2 — Wlodek updated his "must have" book on all of HP's Handheld calculators and computers. RCL 20 was produced for the Conference last year.

Sunday Schedule continued from page 9.

<b>Time</b>	<b>Event/Person</b>	<b>Description</b>	<b>Binder Section</b>
12:00 PM <sub>90</sub>	Lunch. Cross Word Puzzle winner announced.	On your own, use restaurant list.	—
1:30 PM <sub>30</sub>	Richard J. Nelson*	A Hardware Tour Of The New Machines.	Talks
2:00 PM <sub>15</sub>	Paul Hubbert	Update: Battery charging & Internet Bargains.	Talks
2:15 PM <sub>45</sub>	William Graves	Debug4x: Easy SysRPL and Porting from the 48. Conn4x: An overview and Q/A about communications	—
3:00 PM <sub>30</sub>	Wlodek Mier-Jedrzejowicz*	Vital Functions Not found On Today's Machines.	Talks
3:30 PM <sub>15</sub>	Break - turn in your HP48 and HP49 Program.	Introduce yourself to your fourth new friend.	—
3:45 PM <sub>30</sub>	Richard J. Nelson*	Vital Applications Not Found On Today's machines.	Talks
4:15 PM <sub>10</sub>	Best speaker Award	Attendees vote.	Pocket
4:25 PM <sub>35</sub>	Door Prize Drawing	Keep your binder number handy.	—
5:00 PM <sub>60</sub>	User's forum	General HPUC Q & A, suggestions for HHC 2004, Community questions, problems & issues.	—
6:00 PM <sub>bye</sub>	Conference Concludes Conference room closed/locked.	Have a safe trip home. Join us for breakfast tomorrow morning (usually the next conference is discussed).	—

\* - Speakers who have provided Papers. Turn in your paper when you register to be a formal speaker.

Dave Shier reviewed the use of wireless - gosh there are a lot of systems being used - including a discussion of Blue Tooth. Does it make sense for blue tooth to be part of a school calculator? The NCEES would probably not allow Bluetooth. HP would not want add bluetooth as they have many other issues to address. If, however, you took one step backwards and removed the self imposed narrow thinking that many tend to be possessed with, the answer is obvious. Of course, Blue Tooth is the perfect feature for any calculator; financial, scientific, or graphic. Dave pointed out that because Blue Tooth could be easily monitored, that the students would not use it if they were not allowed either in class or during a SAT or PE exam. To me, restricting high technology tools from classes or exams is like putting the students in an extremely high noise environment and expecting them to do well. No one will think about, or worry about, blue Tooth if it is *not* in any calculator. That situation makes it the perfect "add on" for those who would cheat. Again, avoiding the use of technology in class or exams just doesn't make sense. The professionals involved must keep up with technology and adapt, the public certainly will. Dave did not have a paper and I hope that he will get some material together for the CD. The overheads?

Ted Kerber came next and poor Peter Boniface was "bumped" once again. This was the most disruptive part of the schedule. Ted gave us an overview of the issues involving calculators with the surveying community. We all learned some very interesting things about measuring large spaces and objects like buildings. Once again good ideas for the next generation of HP machines were suggested. This was another "theme" of the Conference.

See Ted's plea in the section at the beginning (page 4, HHC List entry for 9/25/03). He has had his difficulties with the third party business because of the way HP treated third party suppliers in the past. Fred apologized about the past and made it very clear that he will try not repeating it. This is one of the reasons he had his team attend the Conference. The present situation is an excellent opportunity for all users who are inspired by HP machines. Certainly, the SD card capability of the HP49G+ offers a very exciting mechanism for software exchange. Can you imagine having all of Eric Rechlin's web site in your machine with you at all times? Memory is no longer an issue with a potential of 1 GB. In addition, because the smallest sized SD card is more than "big enough" as Ted mentioned, the cost is low.

Ted also gave everyone who was interested, a copy of his HP49G+ fonts. This is especially important if you are involved with documentation in any way. What about documents like this that may mention a unique HP49G/G+ routine or command? Don't you want these to be displayed and printed properly? Thanks Ted for your contribution and hard work.

We had a morning break and the entries for the "new" contest were collected. The winners were announced after lunch. Here is where I have egg on my face (actually there are two of these situations, read on). This contest was a cross word puzzle. It involved unique knowledge of HP's machines with all of the clues given as numbers. Roger and Wlodek teamed together - so as not to make me look stupid? - to take this on. Actually, everyone was too busy with all the news and excitement to work on contests; I should have known better and not spent the time preparing them. Time, more on that later. At any rate, there was one entry and the two of them drew from the prize table. It seems that some how there was a mix up of the list of the clues and they got out of step with the puzzle. I have an audit trail of how it was put together and I will straighten it out for the CD. Some of you may want to try your skills if you like crossword puzzles.

Peter Boniface, associate Professor at Cal Poly Pomona, shared his very exceptional career in the Survey field. His talk on how he uses the 48 in Academia titled *The HP48 - An Amazing Teaching Machine* was quite interesting and surprising. The HP49 did not automatically replace the HP48. This difference is reflected in the current line up as well. Here some statistics I wrote down. Of 750 students in Civil Engineering; 5% use 48's or 49's, 25% use \$30 cheapie calculators, and 20% use TI machines. Two percent of those who use calculators can program their machines, and 3% will upgrade to HP over the course of their studies. I suspect that this later statistic is due to the fact that Peter teaches the students the finer points of HP machines during lunch time gatherings and that he shares survey routines for HP machines.

The last talk before lunch was a wonderful "crash course" on the advanced mathematics that Brian Maguire's company, Saltire, has developed. Brian is one of the returning faces I mentioned earlier. He attended a Conference 13 years ago in Chicago. They worked on the never-sold HP Xpander and the current Casio ClassPad 300 that Marc mentioned in his talk. Perhaps we can get some material from Brian to include with the CD. One of the most amazing features of the large vertical screened ClassPad 300 is what is called constraint geometry. The idea is to divide the screen into two parts. The upper part

is the algebra and the lower part is the geometry. They are linked. If you enter the equation of a circle into the algebra part the circle is automatically drawn in the geometry part. If you edit the coefficients in the circle equation, the circle is immediately redrawn to reflect the change. If you draw the circle in the geometry portion - remember the CP 300 is a pen based input device - the equation is automatically entered into the algebra part. Mix it up in the geometric "domain" with triangles, lines, etc. and you will very quickly become familiar with the mathematics of geometry. This was a very exciting and enlightening session. Is this a sign post to the future?

I am told that classes in Europe are now using the CP 300. It is now only being sold in France and Germany. The machine is not sold in this country and I wonder with the attitudes being expressed by many schools and organizations such as NCEES if we are going to retain our technology lead with such politics. Check out the Saltire web site and link to their page where you could order a machine if you are interested.

<http://www.saltire.com/>

HP has released the Xpander software and you may download it into your PDA at:

<http://www.saltire.com/xpander.html>

We again had a long lunch. I "skipped" a talk I had planned and we continued pretty much "on time."

Paul Hubbert shared his battery charging experiment and showed how normal Alkaline batteries may be recharged and providing 3 to 20 cycles if you have a charger and you don't leave them in a discharged state too long. The secret is not to run them down below 1.3 volts if you can. This maximizes the number of times you may recharge AAA's, AA's, C's, D's and 9 volt batteries. Paul also showed a few toys that are a consumer electronics junkies dream. These high tech items are so inexpensive that you may never use them as they are intended. You buy them just to see the ideas they represent. You may also take them apart and modify them for other needs. Many of them are wireless and suitable for calculator usage. Where can you have so much fun for \$5 and less?

Paul could make some extra money by providing a toy of the month that he sends to technology junkies for a fixed annual fee. A little write-up on the interesting characteristics of the "toy" and it would be cheap, educational, and fun. This is a free idea Paul - need a partner? Let's see, ten items per year shipped to you for \$100? Buy the toys for \$3 - 4 on average, spend \$1 for shipping and packaging. Make 50 % or \$50 per year. With 100 subscribers, that is \$5,000 extra per year. Do not ship in November and December. Get paid for playing and surfing the Internet.

The next talk also did not have a "paper" but a special Internet address was given to the attendees to download the software that was described. Bill Graves demonstrated the current HP connectivity software for all the HP high end machines old and new. He also described the very powerful System RPL debugging tool that allows software development in a very friendly environment with efficiency and speed. I believe that Bill will allow us to put both programs on the CD.

The, here-are-some-suggestions-for-the-next-generation theme was emphasized by the two last sessions of the Conference. Wlodek discussed *Vital functions Not Found On Today's Machines*. He included a few functions that have been "overlooked" from past machines. Wlodek covered his talk very well in his

paper and you may read the details from it. This stimulated some excellent suggestions from the audience and Tony could actually be seen taking notes. Jake Schwartz recorded nearly 16 hours of video for this conference and I am sure that it would be very useful to go through the various sessions and record all of the many ideas expressed.

Time was always pressing as there was just too much to discuss and limitless ideas flowed. I skipped my talk to get back on schedule only emphasizing a few ideas that I think are useful for HP to "go that extra mile" in their machines. These overlap with Wlodek's suggestions.

- (1) Allow a variable speed for the Arm processor for the user to trade off battery life for speed.
- (2) Provide an AC adapter jack for those situations where a long running program exceeds normal battery life. See a few comments below on one such problem that Jake Schwartz and Bill Butler worked on.
- (3) Provide a variable sound output for really loud alarms. What good are alarms if they can't be heard? The HP48G+ bender is very quiet compared to my HP48GX, which is not loud enough.
- (4) Provide a clock/date sync capability with the PC. We can all get our PC's "on time" with one scheme or another. Why shouldn't we be able to time update our calculators?
- (5) Return commas to the normal display as delimiters. With 12 digits, I can't easily know if the number is 10 million or 100 million, etc.

The AC adapter issue reminded Jake of a mid 70's PPC phone bulletin that mentioned a problem associated with the Indian mathematician Ramanujan. It was written up in the PPC Journal V5N5P19 which is reproduced at the right as taken from a PPC Cd.. The problem is to find the smallest integers, A, B, C, & D that solves the equation:  $A^4 + B^4 = C^4 + D^4$ .

Jake was remembering that he coded the problem on the very small memory (224 steps) HP-67 and ran the machine for six weeks and did not get an answer. He then coded it to run on a Commodore Pet which solved the problem in 24 hours. He also coded the problem on an HP9830 which got

the answer in 6 hours. This was described to Bill Butler at the Conference who coded the problem on the HP48 49, I am not sure which, to solve the problem in 70 minutes. You may argue that the calculator is not the correct tool to solve such problems, but to a student, it is the tool he or she has. Why should HP say that these kinds of problems should not be attempted on their machines? You have an idea, you program it to run, and you go to sleep. Why run down your batteries, just plug it in and you are assured that the machine won't die during the night. It is just a question of convenience and time!

Everyone seems rushed these days and there never seems to be enough time. To make the point that time is vital in using the machine I put the word TIME on the walls of the Conference room. You will notice this in any photos you see of the Conference. TIME should be an actual design consideration for the next generation and I mentioned it in my paper.

This concluded the formal presentations. We accepted the last two contest entries for an HP49 Programming Contest and an HP48 programming Contest. Joseph conducted the HP49 Contest and I

## RAMANUJAN AND INTEGERS

CONVERSATIONS WITH RAMANUJAN  
Josef J. [3026]

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In his book on the Indian mathematician Ramanujan, Hardy states that to Ramanujan each of the positive integers was a personal friend. Coming to visit Ramanujan, who lay ill in hospital, Hardy remarked that the license number of the taxi he had just driven in -- 1729 -- did not seem very interesting. Ramanujan replied: "On the contrary, 1729 is a very interesting number. It is the least number which is the sum of two cubes in two different ways." They then discussed the analogous question for fourth powers. After some thought, Ramanujan said that he could not tell what the number was, but that it must be quite large. Now, as to the first part of this mathematical tale,  $1729 = 12^3 + 1^3 = 9^3 + 10^3$ , (but is it the least?!). Intrigued by the story, I worked on the problem it implicitly states, but I could not even prove to myself that there is a number which is the sum of two fourth powers in two different ways. I had an IBM 7030 at my disposal, so I coded up the problem, submitted it, and stood back with my eyes screwed shut and my fingers in my ears. The machine didn't blow up, but came back with the answer. When I got my HP-97 recently, I recoded my algorithm for it, and got the same result, although the HP-97 takes quite a while to find it. I invite members interested in such things to try to find the number, and perhaps to discuss their different approaches to the problem.

[3/5]

conducted the HP48 Contest. Cyrille won the HP49 programming contest. This is the second time I had egg on my face, as I did not compute the BT value just the run times, which were essentially the same for Bill Butler and Roger Hill. Bill Butler clearly won the HP48 Programming Contest because his program was 2.5 bytes shorter. Both picked from the prize table. A separate report of the two programming contests will be provided.

We then voted for the best speaker and I mentioned earlier that it was Joseph Horn. We made up a nice colorful certificate signed by the Committee members. We had our usual Door Prize drawings and I think we solved a minor issue in how best to conduct these. We divided the "high ticket" items from the rest and then had two drawings. There were more prizes than attendees and we put the tickets back into the bag and started again. When the books, accessories, tools, etc. were all "won" we put the tickets back into the bag and everyone had a chance for the especially nice prizes. We learned long ago that drawing tickets is better than using a calculator random number generator. It is better (for everyone) to use the proven and accepted method of a random draw. The winners of the "best" prizes in order drawn are:

Drawn	Machine	Binder	Winner
1 <sup>st</sup>	Used HP48+	#12	Matt Kernel
2 <sup>nd</sup>	HP48GX	#43	Larry Gill
3 <sup>rd</sup>	HP-17BII+	#9	David Scott
4 <sup>th</sup>	HP48GII	#3	William Graves
5 <sup>th</sup>	HP49G+	#8	Roger Hill

We keyed everything to the Proceedings Binder number; receipt, prize ticket, attendance list, etc. The last formal part of the Conference was the User's Forum and general questions, issues, and ideas were discussed. Tony and Cyrille attended the Sunday sessions as well. I think that we covered everything we planned and that everyone had an opportunity to express himself or herself and talk to each other. As usual most people reported that even a week later they had not returned to "normal." Shifted time zones, a severe loss of sleep, and excess adrenalin can be very taxing. We all learned a great deal, and we solved a few problems.

## Financial Report

The intent of an HHC is to break even financially. No one makes a profit from the Conference. The various groups that sponsor a conference may handle the finances a little differently because they assume the financial responsibility and use their treasury to do so. I prefer an "open books" approach and here is the money transactions for HHC 2003.

**Income:** Forty three people attended and 29 donated \$45 to pay for the costs. Speakers, Committee members, and HP participants did not contribute. Richard Schwartz collected the donations and turned them over to me for a total income of \$1,305. HP donated the top three of the five door prize calculators and attendees donated the other two. Many incidental costs were borne by the attendees or Committee members.

1	Income	Donations collected	\$ 1,305.00
2	Expenses	Conference Room rental @ \$200/day	\$ 400.00
3		Conference Audio Visual (Screen, white board and table)	\$ 306.80

4	California sales tax charged by hotel	\$ 23.77
5	Badge Holders and materials	\$ 45.16
6	Photocopying at Staples on Saturday	\$ 30.47
7	CD envelopes purchased from Staples	\$ 5.37
8	Prizes purchased at Borders (books)	\$ 47.58
9	1-1/2" Presentation Binders	\$ 148.09
	Total	\$ 1005.24
	Cash Reserve	\$ 299.76

The binder dividers were donated by one of our vendors. The number plus a few (10) I had left from previous Conferences made exactly 60. I had expected a copy cost that would have used most of the balance but the company I work for, AMF, donated the copies and that is a payment that was not made.

We have several Conference items to complete and send to the attendees. These are:

1. Make 50 copies of the HPCC CD from last year. The master is complete (Eric Smith).
2. Make 50 copies of papers (and additions) not in the Conference Proceedings. These include material from Joseph Horn, Dave Shier, Richard Nelson, and hopefully Brian Maguire. (Richard).
3. Make 50 copies of the HHC 2003 CD. (Eric Smith).
4. Include any additional material relevant to the Conference and its topics. (Richard).
5. Include photos of the Conference. (All attendees, especially Paul Hubbert).

These expenses and postage may use 1/3<sup>rd</sup> of the cash reserve. I believe that those people who donated materials (CD's, etc.) should be reimbursed and this could use another 1/3<sup>rd</sup>. This will leave about \$ 100+ as seed money for next year. I accidentally forgot a box of prizes that I bought for this purpose and this will be used for next year. Out of pocket costs for these is on the order of \$ 150+ and includes the Venire caliper (2) listed on the web page, a QX3 microscope, three assorted electronics kits, and small tools. A final accounting will be made when the post conference mailing is made - within a few weeks. I also have a \$300 check given to me by an attendee who insisted that I have it for the help he has received from the group (he used the skills learned professionally). I will return this to him suggesting that he use the money to attend an HHC next year.

### Final Remarks

We conducted this Conference at a minimum cost and planners for next year should not expect to be so fortunate. A major saving was made with the Proceedings copies because it was spread over several months and less visible. For me, the convenience of not having to stand at a copy machine to make thousands of copies was vital. The little \$30 and \$50 costs that add up were often picked up by Committee members or attendees. We had about 17 hotel rooms rented and that brought the Conference room rental down from \$500 per day to \$200 per day. This is not the only reason we got by at the lowest rate (they may have gotten a little back with the AV rentals, however, as the amount in my notes is lower than what they charged). Since HP spent a bundle on the dinner that was provided by the hotel, we were given "credit" towards the lowest Conference room rate. Overall, we did very well financially, and things look really great for next year. I expect that there will be many projects for people to talk about, and I am sure that HP will be active as well. There will be a few nice prizes and a little seed money to get started.

The binder is to hold, in written form, all the material related to the Conference. Some of this (like this report, for example, is to be added later. HP was hoping to bring some literature, but didn't. Three were

several talks that didn't have a printed version that will be added later with the follow up mailing of the Conference CD. I hope that when you add everything - print out a copy of the web page and linked documents etc. - that the 1-1/2" binder will be just right.

## Photos

We requested everyone to bring their cameras and many did. Could you please get your photos to me in any way possible? Send me a CD or email them to me. I would like to make this the most photographed Conference and your photos are vital.

## Conclusions

The Conference was a success and it gets easier each year because the files are saved year to year (on the CD's) and the computer work is done in less time. Several objectives/themes were used to guide the content for this Conference. They are:

1. Each HHC is a "snapshot" of the activities and accomplishments of the HPUC since the previous HHC.
2. Build a relationship with HP to accomplish a common goal - the best computational tools possible.
3. Document that calculators still have an important role/usefulness with students and technical people of all kinds.
4. Suggest functions and features to HP for the next generation of machines.
5. Explore the issues related to the ideal (single) machine that the user needs. Marc and Wlodek mentioned this in their talks. Is the next iteration of the ideal machine a calculator with PDA features or a PDA with calculator features? Wlodek wants the former and Marc favors the latter.

The HPUC tends to deal with ideals and HP must deal with market realities. HP must operate using a New Business Model and they shared that with us in a way never done before. It is a new lean and super efficient HP that not only wants HPUC involvement, but needs it. I am acting as a focal point for HP at their suggestion at the Conference last year, and once again this year. Any ideas, suggestions, or complaints that are not obviously handled by normal channels may be sent to me and I will periodically provide a report to HP. Of course, I will let everyone know of any news, etc. Be sure to be clear that you want the information forwarded to HP so I will "process" it properly. HP management simply doesn't have the resources to handle individual email or phone calls.

Time is an increasingly expensive commodity. Not everyone agrees that putting our ideas onto paper is necessary, because we have the Internet. I disagree, and so do the many others who are working to preserve the rich history that the HPUC has - just read Joseph's references on the decimal to fraction problem to be inspired. I included in the DOCII section of the Proceedings *A Bit of Calculator History*, 17 pp, from Palmer Hanson as a contribution to this end.

An HHC provides that personal touch of having someone show you how something is done. After all, people do things for people, and I think that this Conference once again demonstrated this wonderful sharing quality of HP Users.

X <> Y,

Richard J. Nelson  
September 30, 2003

