

the I.P. Sharp *newsletter*

JUNE/JULY 1975

The *National Capitol* **MARATHON**

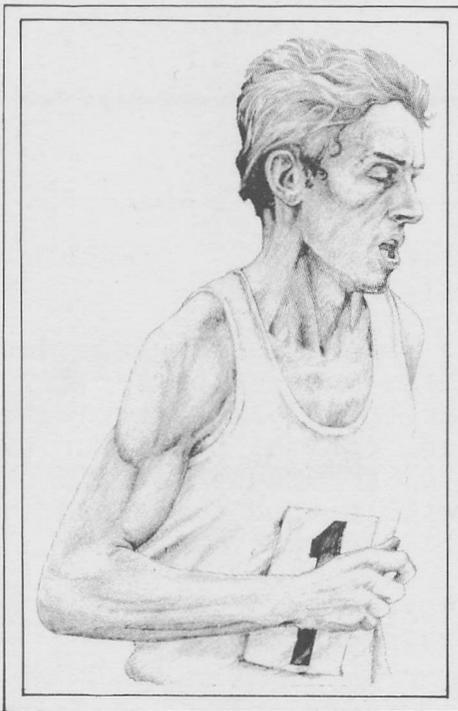


Illustration by Stuart MacDonald

SHARP APL was used for an on-line system to record and project competitors' times in the recent Ottawa National Capitol Marathon. Times through the 5, 10, 15 and 20 mile checkpoints were recorded via radio to the central control centre, where they were entered immediately into the Sharp computer system via two terminals. In a matter of seconds, a report was produced showing the 5 mile times for the 10 leaders in order, plus their projected times for each remaining checkpoint and for the finish of the race. As times were received for each checkpoint they were fed into the computer and updated projections were made from that checkpoint.

Because times were entered into the computer as soon as they were received it was possible at any point to produce a sorted list of all runners who had finished, showing their standings, split times and finish times. Many of these up-to-the-minute lists were produced and distributed before half the runners had finished. The final list was available within minutes of the end of the race.

The "projection model" used was written in *SHARP APL* and was based on data accumulated from the 1973 Trail's End marathon and reported by Paul Slovic in the 1974 Marathon Handbook (Pacing the Marathon).

Slovic took the intermediate and finish times for all runners finishing in each 15 minute time range (from finish times of 2:30 to 4:30 hours) and computed an average pace for each major section of the race for each category. The successive times (for a marathon run in that particular time range) show how the runner slows his pace over the course of the race. For example, a marathoner with an average of 2:30 hours runs at a pace of 5:34 for the first and second 10 mile sections, but slows to a pace of 5:57 over the last 6 miles.

A "slowdown curve" was computed for each runner based on his total time up to a given checkpoint. Projected times for the remaining checkpoints were then calculated using this curve. Table 1 compares the projections made at 5 and 15 miles with the actual finish times for the first ten runners to finish.

Order at Finish	Projected Finish Time		Actual Finish Time
	5 miles	15 miles	
1	2:25:44	2:27:24	2:26:38
2	2:25:44	2:27:26	2:28:26
3	2:29:25	2:31:52	2:32:20
4	2:27:16	2:31:03	2:34:27
5	2:29:14	2:29:25	2:36:44
6	2:29:25	2:30:32	2:38:22
7	2:25:44	2:30:50	2:40:28
8	2:43:21	2:46:33	2:41:02
9	2:37:13	2:39:37	2:42:28
10	2:37:13	2:41:36	2:46:17

Table 1

Those who finished early stayed fairly close to their "average slowdown" pace curves throughout. Most of the other runners in the top ten, however, finished at least 5 minutes slower than their 5 mile projected times. If the curves can be assumed to represent optimal paces for the individual, then the results suggest that many of the runners who finished from 4th to 10th might have finished with better times had they held back somewhat during the first part of the race.

It is hoped that more data can be gathered next year on individual training programs as well so that further analysis can be made.

Contributed by Lloyd Parker,
Canada Systems Group.

SHARP NEW OFFICE

We are pleased to announce the opening of our new office in London, Ontario, under the management of Bob George. Bob has been with Sharp for about two-and-a-half years now.

Drop in and see him sometime.

Suite 1400

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London, Ontario.

Phone: (519)434-2426

APL-75 - PISA!

by VALERIE CHESTERS and BRIAN DALY

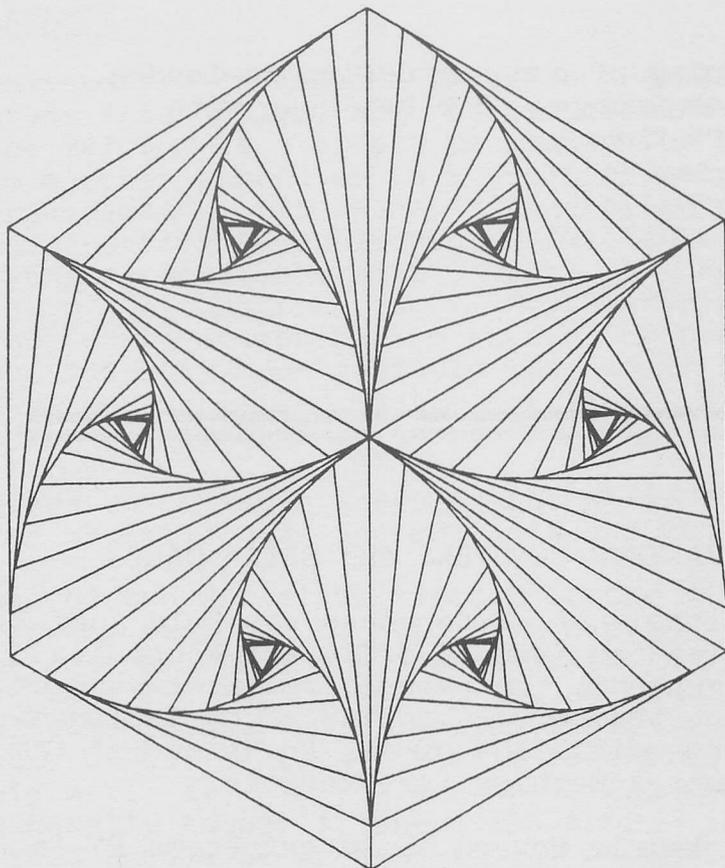
The latest in a series of international *APL* conferences was held June 11 to 13 in Pisa, Italy. Over 300 delegates from 19 different countries attended the three-day event. In general, the papers presented were of high quality and covered a broad spectrum of *APL* topics, from implementations to information systems, from criticisms of *APL* to "bizarre" *APL* solutions. In other words, there was something for everyone.

The proposal of Mike Harbinson and Laurie Howard of Intersystems BV (a subsidiary of I. P. Sharp Associates Ltd.) for a large network of *APL* processors supporting up to 1000 terminals simultaneously, attracted a lot of interest. The paper was particularly interesting since the proposal was for *APL*-only processors, which would reduce the inefficiencies inherent in multi-language environments.

Three other generally well-received papers were given by Phil Abrams ("What's Wrong with *APL*?"), Garth Foster ("What Lies Beyond the Branch Arrow?"), and Roy Sykes ("Bizarre *APL* Solutions"). These were mainly concerned with *APL* programming style and various alternatives to present data and control structures. It was very encouraging to see such constructive criticism from within the lists of *APL*'s strongest supporters. In Phil Abrams' own words, "It is because *APL* has come of age, both in the theoretical domain and the commercial world, that it is possible to look at it publicly with a critical eye."

There were surprisingly few papers given concerning the speed with which problems could be solved using *APL*, one of the features which makes its use so attractive. Two which did emphasise this point were those by Dr. Steinhauer (Rehabilitation Institute, Heidelberg) on a documentation and information retrieval system, and by Harold Driscoll (Scientific Time Sharing Corp.) on system programming tools. Roy Sykes' truly pornographic code was much appreciated although Ken Iverson, the father of *APL*, was observed to wince at some of the obscenities thus produced. These are available (in a plain brown envelope) from your local Sharp office.

The exhibition room at the congress proved to be a good meeting place for the mutual exchange of ideas. Stands from several leading



European suppliers were on display there and access to different APL systems was also available. Bob Bernecky (Sharp) demonstrated his new 3-D graphics package to the mobs of people who gathered to watch (see left). The display was extremely attractive, as was the low cost of use of the package. In addition, there were exhibits by terminal manufacturers and one for the APL mini-computer MCM70.

A remarkable feature of APL75 was the friendly co-operation of all those present, many of whom were the original implementors of the language. People there from several companies - many of them in direct competition in the marketplace - might have been expected to show some rivalry, but this was certainly not apparent. Evidently, loyalty to APL is generating a lively and fast-growing commu-

nity of APL people. Vigorous arguments concerning new ideas and proposed extensions to the language arose. These were constructive and this attitude may well account for the present consistency in different implementations of APL.

An important recent event in the APL community was the establishment of STAPL (Sigplan Technical Committee on APL) under the wing of the ACM. The official body has as its main purpose the creation and maintenance of APL standards, the dissemination of information and the publishing and distribution of "APL Quote Quad", the main technical journal of the community. Proceedings for the conference may be ordered prepaid from the Association for Computing Machinery at:

ACM
P.O. Box 12105
Church Street Station
New York, NY 10249.

Next year's congress, APL76, will be held in Ottawa, September 22 to 24, 1976. The theme will be "Putting APL to Work" and the call for papers will be mailed about mid-July. Further information can be obtained from:

B. J. Daly or R. G. Morrisson
I. P. Sharp Associates Limited
2003 Gladstone Avenue
Ottawa, Ontario K2P 0Y6

who are General Chairman and Local Arrangements Co-ordinator respectively.

As three hectic days and nights of the congress drew to a close a banquet was held in the romantic medieval walled garden and dungeons of a castle. It was time for many partings and the certain knowledge that most people will meet again. ...Next year in Ottawa?

POST SCRIPT to PISA: Ken Iverson, after examining the famous leaning tower, declared it to be the original software project. It took 300 years to build and by the time it was 10% built, everyone knew it would be a total disaster. But, by then, the investment was so big that they felt compelled to go on. Since its completion it has cost a fortune to maintain and, short of spending a lot of money on it, one of these days it will collapse. There are no present plans to replace it, since it was never really needed in the first place.

EQUIPMENT CHANGES

Significant changes are underway in the equipment we use to support the *SHARP APL* service. Some of these changes will be apparent to our users and others will not.

Between July and September both 370/145's will be replaced by 360-model 75's. The 75 is faster than the 145 by a factor of nearly three, so the principal impact will be an improvement in response time.

The discs will be converted to double density drives before the end of the year. This change is being made to save space in the computer room and also gives us marginal reduction in costs. We hope within the next few months to introduce a compaction scheme for file data, which will result in a significant reduction in file charges for customers whose data is mainly in the form of small positive integers.

The tapes we use for system back-up were recently changed to STC 6250 bits per inch drives. This means we get through our back-up routines quicker than before and use fewer tapes in doing it.

The communications front end processors are being replaced by IBM 3705's. Our communications facilities have hitherto been based on the use of time division multiplexors and Bell Canada's dataroute service. We intend to replace most of these services with a mini-computer controlled packet switching system. While we will be supporting our own private packet switching network, we also intend to support the Bell Canada packet system and possibly other protocols. The principal effect on the users will be an increase in the reliability of the communication system. The *RESEND* message will disappear, as the network will have the ability to retransmit in the event of errors. We also intend to implement a facility for high-speed transmission to and from all the cities on our network.

One thing we do not intend to change is the operating system. Since 1969 we have been using DOS and by and large it has served us well. In spite of the joys and wonders of OS, VS, VM, CICS, etc. we will stay with DOS on the grounds of its simplicity, efficiency and overall reliability.

Our reputation for reliability has been good. The changes we are making now and planning to make in the near future should improve that reputation.

MAILBOX

We recently produced a flyer on the *MAILBOX* which explains, without going into detail, what facilities are available. As its name implies the *MAILBOX* is a simple mechanism for sending messages from one person to another person or to a group of people within the same company or organization. It is not a general-purpose message switching system and no directory is published or available to users. Thus company "A" cannot communicate with company "B". With this restriction it does not usurp the functions of the North American common carriers and is therefore quite acceptable to them. European telephone companies are considerably more paranoid than their North American counterparts and ban the use of the system outright. With regret, therefore, we do not offer the *MAILBOX* in Europe.

Since we register users in the *MAILBOX* ourselves, it is easy for us to say who will have access to it and who will not.

One of the principal virtues of the *MAILBOX* is the very simple idea of sending messages to people rather than places. In order to receive a message a user signs on, loads the *BOX* and requests his mail. He can do this from any point in the North American communications network. No time is wasted on long distance calls to confederates who may be busy or out of town. When a potential recipient is ready he requests his mail; it receives his whole and undivided attention, and he will generally answer it there and then. If he receives a message which he feels should be brought to the attention of someone else, he merely forwards it to that someone else. If he wants to reply to the sender and several other people, he merely "cc's" the other people. If he wants to send a message to an affinity group, he merely uses the group name.

MAILBOX has been in operational use for about 5 years so we are not really breaking new ground. It is becoming of more interest to our customers as telephone bills climb and the normal mail service deteriorates.

If you would like to see how it works and to see how inexpensive it really is, just get in touch with your closest North American *SHARP APL* representative. He (or she) will probably be happy to print out the day's mail while you watch and wonder how long those memos you wrote yesterday will take before they are delivered.

REVISIONS TO 1 FILEPRINT

A new version of the 1 *FILEPRINT* workspace is now available. The old 1 *FILEPRINT* function *PRINTREQ* will be supported until September 10, 1975, at which time it will no longer work. This is of direct concern to those who have copied the old version of *PRINTREQ* into their own workspaces and/or embedded it into functions. It is important that the change of versions be made prior to September 10, 1975. Sharp consulting staff is available to help you make the alteration. The full documentation for the new *FILEPRINT* is found in the recent reprint of "*SHARP APL File Subsystem*".

"A SHARP APL MINICOURSE" - A Smooth Introduction.

We are pleased to announce a new, condensed *APL* introductory course, "A *SHARP APL* Minicourse", designed by Dave Keith. This short (56 page) manual provides a painless introduction to some of the simple concepts and primitive functions in *SHARP APL*. It is particularly useful to those yet-to-be *APL*'ers who have neither the time, inclination nor need for the exhaustive and somewhat terse treatment given by Pakin, Gilman and Rose and others.

The user can achieve reasonable competence in function definition and get to know the most frequently used primitives in a short time. The examples are chosen from non-esoteric applications. Many problem sessions allow the student to test his progress and reinforces his understanding of each successive topic.

An experienced *APL* programmer would nod approval: "yes, I see why he introduced that here", "well, that's a simplification, but useful for the time being", and so on. The minicourse does not delve into some of the less popular primitives since this manual is not designed for a sophisticated user. Additional concepts and techniques may be learnt by referring to manuals that cover *APL* in more detail.

"A *SHARP APL* Minicourse" is available from your local Sharp representative.

APL COURSES

OTTAWA:	Introduction to <i>APL</i> :	August 11	September 8-12
	Intermediate course:	August 12-14	(see note on
	Libraries course:	August 26	revised format)
TORONTO:	A three-day course:		
	the weeks of August 18 and	September 15	
VANCOUVER:	Introduction to <i>APL</i> :	August 11-13	
LOS ANGELES			
(NEWPORT BEACH):	Introduction to <i>APL</i> :	August 4-8	September 8-12
ROCHESTER:	Introduction to <i>APL</i> :	August 18-22	September 22-26
LONDON, ENGLAND:			
	Introduction to <i>APL</i> :		September 15-19

Note: Beginning September 8, 1975, our Ottawa office will change the format of their *APL* courses. They will teach an Introductory course that will run from Monday morning at 9:00 AM until noon on Friday.

Please contact your local *SHARP APL* representative if you are interested in attending a course.



Update

- Please amend my mailing address as indicated.
- Add to your mailing list the following name(s).
- Send me SHARP APL manuals and product literature as listed.

Note my comments: _____

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