

the I.P. Sharp *newsletter*

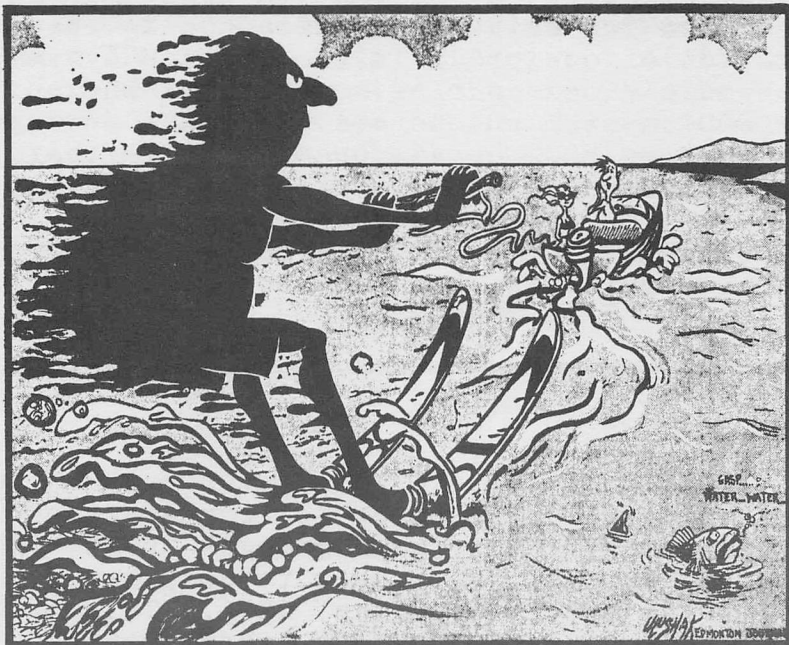
SEPTEMBER/OCTOBER 1974

Using APL: Environment Canada

APL's strength as a builder of interactive computing systems is increasingly being demonstrated by the varied fields of business to which it is applied. A particularly gratifying example is that of environmental protection. Federal Environment Deputy Minister R.F. Shaw announced this summer that "Canada is developing probably the most comprehensive on-line computer system for environmental emergency management in the world." SHARP APL had a significant role in this development.

The system provides the ability to fight accidental discharges of oil and hazardous materials with greater speed and efficiency. It involves four systems: The EPA Oil and Hazardous Materials-Technical Assistance Data Systems (OHM-TADS), the National Emergency Equipment Locator System (NEELS), the National Analysis of Trends in Emergency Systems (NATES), and the Water Resources Document Reference Centre (WATDOC).

NEELS and NATES were implemented in SHARP APL by consultants Ralph Morrison and Bill Lidington respectively, under the direction of Ottawa branch manager, Brian Daly. Environment Canada directed the development of NEELS by I. P. Sharp, in close cooperation with the



courtesy of Edd Uluschak and The Edmonton Journal

11 major oil companies which are members of the Petroleum Association for the Conservation of the Canadian Environment (PACE), and the Ministry of Transport. NEELS locates and describes the nearest suitable spill countermeasures equipment and materials to combat a spill at a given location. Once the kind of equipment needed has been identified the computer will provide not only the company name and address of the nearest equipment, but the telephone number and the name of the man to call. I. P. Sharp maintains this national inventory of government and industrial spill equipment on-line as a public service.

"Sorry—I didn't see that oil slick!"

(cont.)

ENVIRONMENT CANADA (continued)

The NATES data base contains Canadian spill histories, and at the spill site one can search its records to see how someone else handled a similar spill. This kind of on-site information service is made possible through what is called "the latest thing in spill counter-measure devices" - a portable terminal. NATES is also used to analyse past spills to prevent or better handle future ones. Environment Canada, the Ministry of Transport and the Ontario Ministry of the Environment are partners on this system at present and it is hoped to add other provinces in the future.

OHM-TADS is the only non-Canadian portion of the system and is part of the U.S. Environmental Protection Agency's ENVIRON system. It provides information on the identification of unknown chemicals and the handling and cleanup precautions required. Additional information is available through Environment Canada's WATDOC system, containing two hundred thousand abstracts of environmental literature and Canadian federal law, as well as the names and phone numbers of environmental emergency experts.

The decision to develop or acquire such an on-line system was made in the summer of 1973 by the Environmental Emergency Branch of Environment Canada. In summarizing the objectives its designer, Cam McNeil, stated: "We wanted a Canadian made Rolls-Royce at Volkswagon prices and we wanted it by the end of the fiscal year." That's the kind of challenge SHARP APL is happy to take on. And the results came in - the development and acquisition of these on-line systems cost the Canadian taxpayer less than \$10,000 and $\frac{1}{2}$ man-year.

A fringe benefit of the NEELS system became apparent this spring when it was realized that the system was quite capable of listing inventory for purposes other than oil clean-up. The particular requirement was for some means of controlling equipment to be used in the fight against rather disastrous flooding predicted for British Columbia during the spring breakup. The categorization of equipment in the on-line system was not sufficiently broad to handle flood control equipment. The modifications to enable the 'FLOOD' system to operate were made during the same day that the idea of NEELS vs FLOODS was conceived. Further, several of the D.O.E. staff were trained in the use of the new package and by late evening of that day an army of people were entering data. Fortunately the anticipated floods did not materialize but simulations demonstrated the usefulness of the system if they had occurred.

ADDITIONAL COMPUTER INSTALLED

We have recently acquired a Burroughs B6700 computer to increase the capacity for SHARP APL time-sharing services. The Burroughs B6700 joins the two IBM 370/145's already in use. We expect to complete full development of SHARP APL for the system by March, 1975. This development includes the file system, ΔFMT and various other features which comprise SHARP APL. We have not yet produced a schedule of charges for use of the B6700, but do expect more cost-effective CPU time charges. Contact our head office for further information.

I. P. SHARP AWARDED \$1.8 MILLION CONTRACT

A valuable aid to air traffic and ground control at Canadian airports is to be provided by I. P. Sharp Associates under a \$1.8 million contract awarded by the Department of Supply and Services on behalf of the Ministry of Transport. Known as OIDS, the Operational Information Display System is designed to improve the visual presentation of data to control personnel, and will be installed at major airports across Canada - Toronto, Edmonton, Vancouver, Winnipeg, Gander, Moncton and Montreal - together with installations at the Department's Uplands (Ottawa) Laboratory and the Simulation Centre located at the air traffic control training school at Carp, Ontario.

The equipment to provide this everchanging display is centred around the IPSA 300 controller developed by Sharp at their Carleton Place facility. A total of twelve dual mini computer configurations and approximately 200 video channels will be provided. The CPU will be an Interdata Model 70 mini computer. Between four and thirty-seven display channels will run simultaneously depending upon the location, while a combination of keyboards and keypads will provide access from the traffic controller locations. Peripheral equipment include a teletype reader-punch and either a high speed paper tape reader-punch or cartridge type magnetic tape for initial program loads.

Considerable physical space saving will result from the installation of OIDS. For example, a 9-inch video monitor in the controller's console replacing the functions of existing indicators will occupy one-seventh the amount of space.

Under the contract, I. P. Sharp will provide all the system hardware, engineering services, design and implementation of software, and training. The project is expected to employ 12 to 15 additional people at our Carleton Place division.

Coincidental with the government award came the news of the selection of the same family of equipment for a major telecommunication carrier for use in visual information retrieval and display.

PUBLIC LIBRARY ENHANCEMENTS

Look for some significant improvements in the SHARP APL public libraries in the near future. Three major efforts occurring simultaneously in Calgary, Ottawa and Boston are almost completed and ready for inclusion in the public library. The Calgary office under the direction of Lib Gibson has been working on a new statistical library package; David Bonyun in Ottawa has been improving our pure mathematics library; and the Boston office under John Harris' direction is putting the finishing touches on a completely new financial analysis package.

David Bonyun, who has made many important contributions to the SHARP APL public library as Systems Librarian, has accepted an appointment to teach data processing to Tanzanian public servants in that African country under the auspices of the Canadian International Development Agency (CIDA). Ken Mosey of the Toronto office has been appointed Systems Librarian in his place. We look forward to continued development of the libraries under Ken's experienced guidance.

THE USE OF TABS

The majority of terminals being used on the SHARP APL system provide a tabbing feature which, if used properly, can save connect time costs by as much as 30%. These savings are most significant when printing columnar reports or plots. When tabs are in use, the typing element skips across the blank spaces at a much faster pace than if it were merely spacing one character at a time.

To use the tab option correctly there are two considerations: first that the physical tab positions on the terminal are in fact set for equal intervals; and second, to issue a command to APL indicating that this is the case. From then on the APL system will issue a tab skip whenever appropriate with no further action required of the user. If a report prints incorrectly, with "ragged" tab positioning, the probable cause is that the physical tab settings are not fixed as expected by the system. In this event the user can stop the report, reset the tabs and restart the report.

If planning to use tabs for a report, it is good practice to check the tab settings immediately after signing on. This can be done by hitting the tab button continuously and seeing that the typing element stops at every Nth position. Since a common setting for tabs is 5, we will assume that $N=5$ for this example. Assuming that the tabs are not set at every fifth position, one should proceed as follows:

- 1) Clear all tab stops by spacing the type element over to the right hand side of the terminal, holding the clear button down (of the clear/set switch) and then with the clear button still depressed, hitting the carriage return.
- 2) Now that the old tab stops are gone, new ones may be set by skipping 5 spaces with the space bar, and then depressing the set button. Repeat this procedure right across the terminal. Then hit return, and again check each tab stop to ensure that the settings are now at every fifth position.

Now that the physical setting is accomplished, the user may tell the APL system this by issuing the system command `)TABS 5`, for which the response will be `WAS 0`. After this command, tabs will be used to advantage wherever possible.

For systems operating on terminals that always have the same tab setting, tabs may be set automatically in an APL function by using the `TABS` function of library 1 `WSFNS`. If this feature is used, all personnel dealing with the system should be well informed of the fact, and given alternate possibilities in the event of a mechanical failure of one of the tab settings. Library 9 `TEST` contains more information on the tab option, and the variable `TABSHOW` in that workspace is suggested as a starting place.

NEW YORK AREA OFFICE OPENED

Our newest office is at: Suite 39, Station Plaza, 250 East Hartsdale Avenue, Hartsdale, N.Y. 10530. Telephone (914) 472-6380.

MINI BASED CATS AND DOGS

The Toronto Stock Exchange is experimenting with a CRT terminal system which it hopes will eventually replace the centralized trading floor. The system, named CATS (Computer Assisted Trading System), involves a set of PDP 11-05 computers tied to a PDP 11-40 in a polling network. Included in the system is an IBM 370 acting as a host to the data base. Eventually the network will be nationwide and extend the advantages now held by T.S.E. floor traders to people in all of the major cities of Canada. I. P. Sharp's Special Systems Group under the guidance of Draper Dobie is making a major contribution to the CRT terminal and computer network design.

Draper Dobie has been using mini based stock data for many years. Several years ago it established a stock data base on a PDP 8 disk system. It is used every day to supply charts and data on demand during trading hours. Another PDP 8 system supplies summary data to Rogers Cable T.V. for the general public. Currently a new and more powerful system based on PDP 11 computers is near completion which will allow the brokers of Draper Dobie access to institutional records, client records, portfolios, a fundamental research data base as well as access to CATS. All Draper Dobie offices will be tied into this system via CRT terminals of CATS design. Again the Special Systems Group is making significant contributions to the system, known as DOGS (Dobie General System).

SPECIFYING PRINT CHAINS

The high speed printer at our Computer Centre normally carries an APL print chain, either APLFAST or APLFULL. Customers requesting a high speed print run should be aware that one of these chains will be in use if no specific type is requested. The APLFULL chain includes both APL and Courier characters; the PN2 chain is the standard IBM print chain. If either of these chains is required for a user's output, then the chain should be specified in the *SPECIAL INSTRUCTIONS* portion of the *PRINTREQ* sequence in 1 *FILEPRINT*. If a print request is submitted with no specific train requested, then the "default" situation exists and the job will be run on an APL train.

APL COURSES - NOVEMBER & DECEMBER

<u>Date</u>	<u>Location</u>
November 4 - 8	Ottawa office
November 11 - 15	Toronto office
November 12 - 14	Calgary office
December 2 - 6	Ottawa office
December 9 - 13	Toronto office

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



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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: _____

The Newsletter is a regular publication of I.P. Sharp Associates Limited. Contributions and comments are welcomed and should be addressed to: The Editor, I.P. Sharp Newsletter, Suite 1400, York Centre, 145 King Street West, Toronto, Ontario, M5H 1J8.



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