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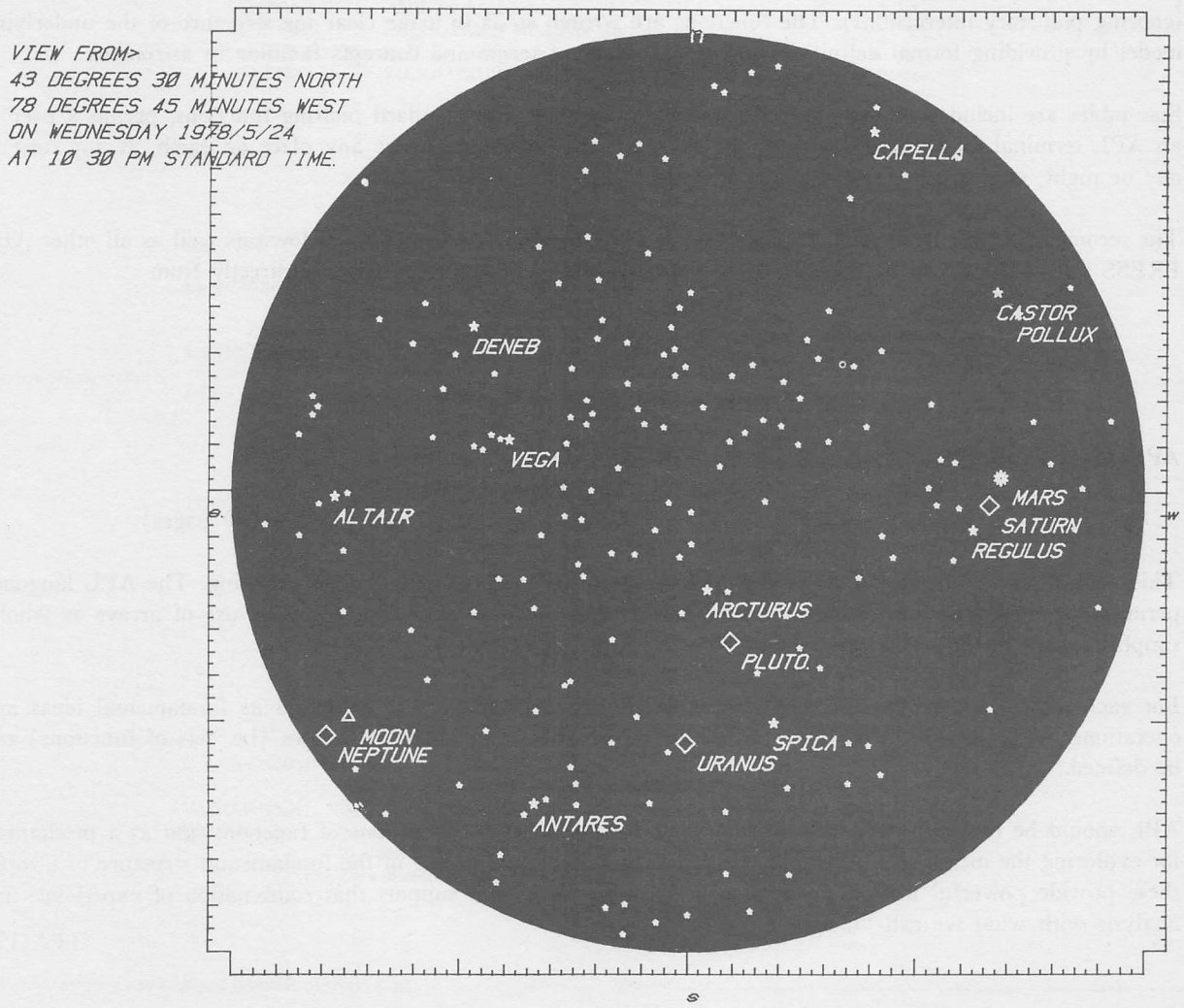
In many fields of science or commerce it is possible to write APL programs which correspond directly to the basic terminology of the area. These defined functions in effect constitute a user language tailored to the particular field. Using them, application programs may be readily constructed from familiar terms. A highly modular style of programming simplifies the programmer's task, and makes it easy to modify the outer programs or adapt them for new applications. It also makes for programs that are easy to read as well as easy to use. Indeed, the programs may serve by their structure and organization to make clear to a student how quite complex tasks are organized.

"**STARMAP**" illustrates this approach to programming by discussing a single example in detail: a family of programs which permit the computer to draw a map of the sky showing the planets and the brighter stars as they appear above any place on Earth at any time in any day.

(continued)



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The motions of the planets may be described by simple formulas first worked out by Kepler in the seventeenth century. Techniques for solving the equations, so as to predict the positions of the planets at a particular time, were developed by Newton. These are used to identify the point along its orbit at which each planet may be found. A series of translations and rotations adjusts those coordinates to the view from the Earth, and further rotates them for the observer's position on the Earth's surface. Similar transformations can be applied to the coordinates of the fixed stars. The techniques for translation and rotation of coordinates had all been worked out before the end of the nineteenth century. Thus these programs contain no novel data or methods; their principal interest is in the style and organization of the programs by which classical formulas are represented.

A version of STARMAP is available in SHARP APL in workspace `13 STARMAP`. Functions from the SHARP APL Graphics package (`3 GRAPHICS`) are used to produce the maps. Please note that the terminal in use has to be identified at the outset by typing

```
TERM 'code for terminal'
```

A list of codes can be displayed by typing `TERM ''`.

"STARMAP", by Paul Berry and John Thorstensen (41 pages), has just been published by **APL PRESS**. It provides a complete and concise statement, in APL functions, of a simple model of the solar system (that is, ignoring planetary interactions). The functions are written so as to make clear the structure of the underlying model by providing formal definitions for a vocabulary of terms and concepts familiar in astronomy.

Star tables are included so that the APL functions, together with standard plotting functions, permit a user at an APL terminal to produce a map of the sky as it should appear above any place on earth, at any time of day or night, over a considerable range of dates.

The second new book from APL PRESS: **"APL AND INSIGHT"** (described below) as well as all other APL PRESS publications, can be obtained from your SHARP APL representative or directly from:

APL PRESS,
Box 378, Pleasantville,
N.Y. 10570

APL AND INSIGHT

Paul Berry, G. Bartoli,
C. Dell'Aquila, V. Spadavecchia (89 pages)

This book discusses the use of APL and APL programs to represent concepts in teaching. The APL language permits restatement of the formal or mathematical basis of many scientific topics. Its use of arrays as wholes simplifies both thought and expression.

For each topic to be taught, the key task is developing a language that expresses its fundamental ideas and operations. APL provides a basic syntax within which these specialized languages (i.e. sets of functions) can be defined.

APL should be understood both as a framework for building the definitions of functions and as a mechanism for exploring the meaning of functions. Backed by a suitable rethinking of the fundamental structure of a topic, these provide powerful tools of expression and computation, and support that combination of experience and analysis with what we call "**insight**".

Earlier conceptions of the computer's role in education led researchers to concentrate on ways of facilitating the process of instruction. By contrast, "open use" of the computer is an approach independent of and complementary to efforts on behalf of process.

Attention is focussed on ways in which the content of a discipline is organized and represented. The book argues:

- that the key concepts of various disciplines may be represented as functions;
- that a language such as APL permits a readable, formal definition of a function and a means of executing it and thereby accumulating the experience necessary to understand it; and
- that it is possible (but, unfortunately, not usual) to write computer programs so that they correspond directly to the functional concepts of a discipline.

This requires a programming style that differs in important ways from common practise in data processing; nine points of style in pedagogic strategy are mentioned, each illustrated with discussion of specific APL programs.

Excerpts from an elementary physics course show how functions may be both the aim of the investigation and the means to represent a phenomenon (such as free fall) and the apparatus used to study it. Sample material from an introduction to computer science is organized around an "abstract machine" consisting of sets of APL functions which describe at varying levels of detail a set of algorithms for the execution of algorithms. The various uses of APL functions in teaching are summarized, and the problem of curriculum development to make best use of this approach is discussed.

Sharp Special Systems

INSPECTOR AIDS CITIBANK INVESTIGATORS
A New Application for the Sharp Microfilm Retrieval System

Don Bacon, Rochester

As the second largest banking institution in the world, Citibank handles up to 200,000 transactions per day among its foreign branches. These include issuing and cashing of travelers checks, cashing checks drawn on other banks (transits), and crediting customers accounts with deposits (credits). To keep up with the high volume of information, the Wall Street branch of Citibank recently installed a two million dollar proof encoding system manufactured by NCR.

The system consists of 24 stations which read the encoded characters on an incoming check, deposit slip, or travelers check. This information: date, dollar amount, account number (or for transit items an identifying number called ABA), type of transaction, and station number is then stored in the NCR disk files as the documents themselves are microfilmed. A credit file or index is maintained for each deposit item. Because of the volume, however, checks are not indexed directly, but are indexed a page at a time. Thus only one out of every 150 items is actually stored in the data base. A sorted COM listing of the checks is produced on the same type of roll microfilm. The last item on each COM page of 150 documents is then indexed.

While this system collects and files the data, it alone would still not alleviate the investigators' job: tracking down lost or incorrect transactions and reporting the results back to the customer. Without further automation of the system this would have to be done by a lengthy manual operation: the film cartridges would have to be manually scanned until the correct transaction was located. This would consume the greater portion of the investigators' time and would be tedious at best. Also, many investigators would be needed to keep up with the number of searches expected.

To solve this problem, I. P. Sharp Associates' microfilm retrieval system, INSPECTOR, was installed this year at Citibank in order to perform these retrievals easily, quickly, and relatively inexpensively. INSPECTOR is a generalized data base and microfilm retrieval system featured in our Newsletter of March-April 1976.

The following example from the Citibank INSPECTOR system is not uncommon: A customer insists that a deposit was made on a given date for a certain amount, yet no record of the deposit exists. Using INSPECTOR, the investigator keys in the known information and initiates a search. If a record of the deposit exists, the result of the search is a microfilm reel and frame number pinpointing the document in question. The investigator then has only to place the requested microfilm cartridge in the reader-printer. The system will then drive the viewer to the correct frame on the film. For verification, the investigator may then make a copy of the document using the print feature. Total elapsed time is about a minute.

For transit items and travelers checks a two stage search is necessary. The first locates the COM film page referencing the document. Each page of COM film references 150 items, and for each item there corresponds a reel and frame number of a credit microfilm reel. The correct credit reel may then be identified and mounted, and the system will again drive the film to the correct document.

The hardware for this system consists of a Data General Nova 3 with 48K words of memory, mag-tape drive, communications hardware, 96 megabyte disk drive, and a hard copy system console. The three display stations each consist of a CRT and Kodak Microstar reader-printer. The INSPECTOR software was developed by Special Systems in the Rochester, NY office.

Daily data capture is performed from magnetic tape: two tapes each of credit and COM created by an NCR program from files on disk. At Citibank's highest volume this takes about an hour and a half. The data is stored in two files. The serial file references data in reel-frame order allowing for details on an individual document to be displayed. The inverted file orders the data on a field-value basis and speeds retrievals. The system as configured above can hold one year's worth of data at a rate of 200 thousand transactions per day before purging of any data is necessary.

The system was formally accepted in January, and is presently running live. The INSPECTOR system at Citibank is but one application of this very general package. INSPECTOR is a combination of hardware and software that is flexible enough to be used over a variety of applications and storage requirements, yet can easily be tailored to a user's specific needs. Further information can be obtained by contacting your local Sharp representative or either Don Bacon or Bill Tate in the Rochester office.

DYNAMIC LOT SIZE

Andreas Buch, Curator AG, Zurich

The Adapta DLS system (March-April 1977 and January-February 1978 newsletters) for scheduling production and purchasing, has now been extended to include several additional features, some of which are listed below:

1. **Setup times** (production): for a specific item the setup time is the time required to adjust a production facility and attach the proper tooling to produce that item. Setup time should always be considered if a constraint imposed on the production facility is the number of machine hours available in the different time periods in the planning horizon.

2. **Deterioration constraints**: for a specific item the deterioration constraint is the maximum storage duration acceptable for that item. This is often an important constraint if an item is subject to a loss in value when stored too long (foods, pharmaceuticals, etc.).

3. **Time varying safety stocks**: often it is desirable to plan different safety stocks (target stocks) for different time periods. This is especially true for items underlying seasonal demand cycles. One wants to plan higher safety stocks for a seasonal peak period, or before a promotion, and lower safety stocks when demands are diminishing afterwards.

4. **Listing of data according to items and/or model elements**: data may be listed partially or completely one item or model element at a time. For example, a list of the delivery plan for three specific items in four specific time periods would be a partial list of the model element "delivery plan".

5. **Individual item names and/or unit names**: if desired, all names and units can be specified (and edited) by the user. For reasons of simplicity, names and system-generated aid numbers may be used interchangeably in any conversation.

If desired, the sequencing and production quantities within a specific time period can be taken care of by an efficient DLS sequencing algorithm.

The significance of the DLS system lies in its unique property of being able to consider, under a wide range of real world conditions, any amount of future information in the production and purchasing decisions to be taken today, such that the cost is minimized. The system can easily be applied in its present form, or used as a basis for tailoring individual systems to suit particular firms' requirements.

The DLS system can economically solve production and purchasing scheduling problems of any size on the SHARP APL system.

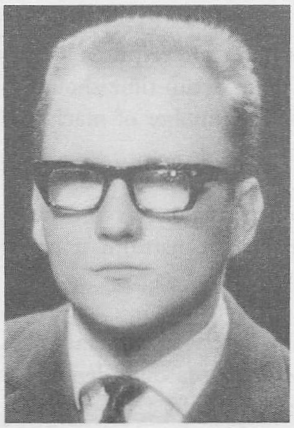
For further Adapta DLS documentation, please contact the author or your local Sharp representative.

Andreas Buch,
Curator AG, Freigutstr. 27,
8039 Zurich, **Switzerland**.

NEW FACES

VIENNA

Ratimir Kvaternik



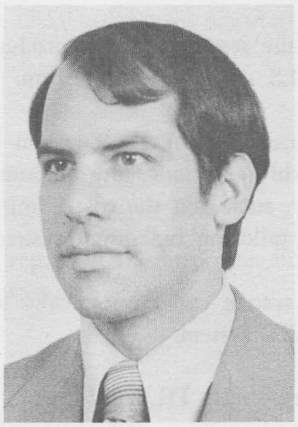
Ratimir Kvaternik joined us in March to run the Vienna office. Ratimir obtained his Masters degree in Computer Science at the University of Toronto in 71/72 where he used APL to elaborate his thesis under the title "An APL Terminal Approach to Computer Mapping". Since then he has been an APL fan, as are most people when they discover APL. After returning to Europe he taught Programming and Computer Science and represented the computer manufacturer Fujitsu Ltd. Ratimir has also been active in customer support and in programming, systems analysis and development of various commercial and technical DP applications, and in marketing.

"My interests cover a wide range of commercial and technical applications, data base organization and usage, and APL systems design. I have a particular interest in APL in computer graphics, computer cartography, and spatially distributed data organization and retrieval.

"There are three main reasons that attracted me to I.P. Sharp Associates:
First, - using APL and the world-wide network; second - the challenge of an interesting job; and third - the spirit at Sharp and the way the company operates. I hope to contribute to the company's expansion in Austria, and to help more users 'discover' APL."

ATLANTA, GEORGIA

Andrew K. Dickey



Andrew K. Dickey has joined I. P. Sharp Associates in the capacity of Atlanta Branch Manager. He organized and opened offices there in March.

Andy comes to Sharp from a major New York bank where he directed a large APL management information system. A Cornell University graduate, he has been working with APL in different capacities for various companies since the late sixties.

"Atlanta has evolved into a major center of business activity for the southeastern United States. The broad range of computing solutions available to SHARP APL users coupled with the experience of our people will soon make I. P. Sharp Associates an integral part of the business community here. I look forward to representing our company in Atlanta, Georgia."

The offices are located at:

Suite H-10
2550 Akers Mill Road NW
Atlanta, Georgia 30339
(404) 953-1020

Technical Supplement – 16

APL STANDARDS? NEVER: Guidelines....well, yes, maybe.....

Valerie Lusmore, London

New APL users are often very confused because of the lack of "APL STANDARDS" that are adhered to by all. Programming standards in APL are, however, a matter of taste and style - there is no "correct" way to do anything in APL, merely a whole lot of different ways to arrive at a solution.

Some people write great long one-liners, others write long skinny functions looking suspiciously like Fortran. Some swear by top-down design, and others are equally vehement in their adherence to bottom-up methods. Some localise their variables tidily, function by function as they go, while others wait until the very end and make a clean sweep of it.

SOME GUIDELINES FOR CLEANING UP A WORKSPACE OR A SYSTEM

WHEN:

1. Before saving a new version of an existing workspace.
2. Before implementing a system.
3. For general tidying up of a system that, like Topsy, "just growed" before documentation and subsequent implementation.
4. When taking over, updating, or expanding a system you did not write. The tidying-up can often be used as a formal approach to becoming familiar with the approach and style, and may often be quicker than just paddling around in the workspace (unless the documentation is good).

HOW: LEVEL 1 - A LICK AND A PROMISE

(for a new version of an existing workspace)

1. Take a spare copy of the old system in case you have to backtrack later on.
2. Check the *SI* and *)RESET* as necessary.
3. Remove all stops and traces from all functions. (Write a function to do this).
4. Check the system variable settings and correct as necessary.
5. Erase unnecessary variables and functions cluttering up the workspace.
7. Check *⎕LX* and set, if necessary.
6. Check the *)SYMBOLS* and then tidy this up by resetting symbols to that value.
8. Update any documentation.
9. Now: *)SAVE* with any locks.
10. Test that it still works. If it is a multi-user system, check that it works on a number other than the Stewards'. If anything goes wrong, you may need to restore something to its earlier form. Use the spare copy of the original system as a source.
11. Lastly, delete the reference copy of the old version.

LEVEL 2 - SPRING CLEAN
(containing many optional items that you may use according to your application)

If more than one workspace is involved, run a Consistency Check between all of them (see workspace 777 *CONSCHECK*) to ensure that all functions and variables with the same name are actually the same. Note any exceptions, comment if necessary, or replace with the desired version.

Two documents are needed for each workspace: a WSDOC and a WSXREF (for details, see Library 7). Armed with these tools, you can now check the following:

1. All items in the WSXREF marked *?* should be checked, and any corrections noted. These may include some real errors such as duplicate line labels in a function, and some items that are OK, such as functions which are directly executed by a user and thus not called by any other functions.
2. Check all items labelled as GV - global variable. Make sure that these are meant to be globals and are used consistently throughout. Mark for erasure any that are localised in all functions and have merely been left in the workspace during testing. If the variables always retain the same value, consider writing an INITIALISE function to set them up on entering the workspace or to set them to the default value, thus clarifying their use (for documentation). Similarly, consider writing a function called CLEAN, that erases all such variables, to be used during system maintenance, before saving the workspace.
3. Check all items labelled GL - global locals. These are items used in a function but not passed explicitly to it. This may be the case where, for example, 6 different parameters are passed from the top level function to one or more functions lower down the tree, and they are not passed explicitly as arguments. Check that these are meant to be this way, and that the usage is consistent throughout. Localise them if you can. If it is unlikely to cause WSFULL problems, try to pass them explicitly as arguments. Where this is not achieved comment functions, if necessary.
4. Check that all functions not called by other functions are meant to be there. Mark them for erasure if not needed. Note that you may have to supplement the WSXREF with a few more details if a function is called with an ⍎ because this will not show in the cross-reference. It is similar if packages are used. Both these will show up in the XREF as uses of ⍎ and ⎕*PDEF* though, and all such references should be rigorously checked.
5. Check any groups. Make sure they are consistent and all items referenced exist. If there is no functional justification for a group, mark it to be disbanded.
6. Check the default settings of ⎕-variables. Initialise them if necessary in an INITIALISE function, especially session variables, if they need to be set. Check ⎕*LX*, and all changes to it, in the XREF.
7. If you have file cover functions, check that these are always used. (For example, if you have a function READ, check that the only ⎕*READ* statement is in that function.)
8. If you have variable names for file tie numbers, check every file access statement to ensure that these are always used.
9. Check all references to ⎕,⍞ to ensure that they are through ASK functions, if these are used.
10. Check all occurences of ⍎.

The suggested procedure is to make all the changes at once, having written them on the XREF and WSDOC, and then run quickly through any items in LEVEL 1 that you haven't covered.

The transformation is complete: the system may not have quite turned into a swan, but it may well not waddle around as quite the ugly duckling it was when you started. A workspace containing a sample of the functions mentioned is 1582421 *TIDY*.

TABBING

Leigh Clayton

A change has been made to the manner in which the system handles tabbing. The change has the (sometimes unfortunate) side effect that *TAB CR* with *TABS* set to zero now reports a *CHARACTER ERROR*. Since several packages prompt explicitly for *TAB CR*, we suggest the following "fix":

- either type *SPACE CR* instead, or
- inform the system of the location of your tabstops.

A system variable named ⎕*HT* (*HORIZONTAL TABS*) has been implemented. This variable, which is a session variable, may be either a positive (nonzero) scalar or a non-negative monotonically increasing integral vector. If ⎕*HT* is a scalar, it overrides but has the same meaning as setting)*TABS* to ⎕*HT*: a tabstop has been set at the left margin and every ⎕*HT* spaces thereafter.

If ⎕*HT* is a vector, it overrides)*TABS* and is a vector of tabstops relative to the left margin. The left margin is labelled 0 (zero) and may be present or absent in ⎕*HT*. Thus:

```
⎕HT←5 is equivalent to
⎕HT←5×⍳50   in either index origin.
```

1 *WSFNS*

Almost all the functions in 1 *WSFNS* are completely obsolete. All but a few (listed below) have been replaced by **system functions** and **system variables**, i.e. begin with ⎕. Displaying the functions in this workspace will show the equivalent quad functions. However, the following cannot be displayed:

Old	**New**
FF	⎕*FF*
Δ*FD*	⎕*FD*
Δ*FI*	⎕*FI*
Δ*FMT*	⎕*FMT*
Δ*VI*	⎕*VI*
Δ*WS*	⎕*WS*

Documentation is in SATN-20, available from your SHARP APL representative, and is on-line in workspace 1 *SATN*.

Functions that are **not** obsolete are:

CLEAROUT
COMEBACK
KEYB
NOCLEAR
WALKAWAY

The old functions that used ⌶-beams have been replaced by unlocked versions that use system functions and system variables.

The non-⎕ versions of functions in this workspace have been retained for support of older systems. New systems should use the system functions and system variables directly.

APPLICATIONS LIBRARY UPDATE - The applications libraries have been modified as a result of the system changes mentioned in SATN 13 (see article on 1 *WSFNS* for some of the changes). All changes are intended to be transparent. Please contact Ed Stubbs or Jane Chung if any of the changes are not transparent, or if something was overlooked.

MERGED: Workspaces 26 *INTEGRATION* and 26 *GAUSS* have been **merged** into 26 *INTEGRATION* (while 26 *GAUSS* has become a dummy workspace pointing towards 26 *INTEGRATION*).

MOVED: AIDS has been moved to library 58 (still available from the old location).

CHANGED: 1 *WSFNS* (see above)
1 *SATN* (see new index below)
3 *GRAFPLOT*, 3 *GRAFIX*, and 3 *GRAPHICS* (new *HELP* function: type *HELP* '' for options)
2 *UTILITY* - New version contains improved *DATE*, *TIME*, *CPUTIME*; old functions *SPACE* and *CPU* are stored in the old version of the workspace in 499 *UTILITY2*.

SATN-INDEX

SATN-0	1 *JAN* 76		SATN INTRODUCTION
SATN-1	1 *JAN* 76		TASKID
SATN-2	15 *SEP* 77	(Rev. 2)	CONTROL MESSAGES
SATN-3	1 *JAN* 76		*⎕OUT*
SATN-4	1 *APR* 78	(Rev. 2)	N-tasks and B-tasks
SATN-5	15 *JUL* 76	(Rev. 1)	BATCH APL
SATN-6	1 *JAN* 76		EXECUTE
SATN-7	1 *JAN* 76		LATENT EXPRESSION
SATN-8	15 *AUG* 76	(Rev. 1)	*HSPRINT*
SATN-9	1 *JUN* 76		USAGE INQUIRY SYSTEM
SATN-10	1 *JAN* 77	(Rev. 1)	*SORTREQ*
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SATN-13	10 *MAR* 78		EARLY WARNINGS
SATN-14	15 *JAN* 77		PACKAGES
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SATN-16	14 *APR* 76		FILE SYSTEM MUST-WRITE BUFFERS
SATN-17	30 *JUN* 76		FORMATTING PRIMITIVE
SATN-18	1 *JUL* 76		*⎕FMT*
SATN-19	1 *JAN* 77		*FILEPRINT*
SATN-20	1 *APR* 78	(Rev. 1)	SYSTEM VARIABLES AND FUNCTIONS
SATN-21	15 *JAN* 77		*⎕WS* and *⎕FD*
SATN-22	15 *JAN* 77		APL WORKSPACE TRANSFER
SATN-23	7 *JUN* 77		COMPARISON TOLERANCE
SATN-24	25 *MAR* 77		*)SYMBOLS*
SATN-25	15 *MAY* 77		EXTENSIONS TO ARGUMENT PASSING
SATN-26	15 *SEP* 77		ENHANCEMENTS TO THE FILE SUBSYSTEM
SATN-27	in production		CONDITIONAL FILE FUNCTIONS
SATN-28	11 *JUL* 77		TERMINAL CONTROL
SATN-29	in production		TIME

BRUSSELS

A party at the Canadian Embassy marked the formal opening of the Brussels office. **Lib Gibson**, the Branch Manager, welcomed about 60 people, many of whom were already familiar with SHARP APL. The people from I.P. Sharp Associates who managed to attend came from as far away as Sydney and Toronto as well as from London and Amsterdam. Lib was joined on April 24th by **Pamela Cocks**. Pamela has 10 years experience with British Airways, initially as a computer programmer, then as a planner, and finally as Superintendent of Commercial Planning, where she was responsible for the computer systems design for Planning in short-haul and long-haul operations.

CALGARY

Wayne Harrington is the newest addition to the Calgary office. He joins **Jane Yates**, **Clarke Bruce** and **Mike Powell** as Technical Consultant. Before moving to Calgary, Wayne worked for Sharp in Montreal for a year, after graduating from McGill University with a Bachelor of Commerce degree. While in Montreal, Wayne provided technical support to one customer in particular who was involved in a Canada-wide financial application.

WASHINGTON D.C.

Peggy Davison, (nee Kueffer), who ran the D.C. office from July 1977, has moved to Los Angeles to become our roving ambassador to the aeronautics industry.

Karen Kreitzer has taken over as Branch Manager in Washington. Karen's first experience with APL was as a programmer at the University of Rochester. She subsequently worked at Xerox and the 3M Company as a user of SHARP APL. In 1973 she joined I.P. Sharp Associates as Branch Manager of the new Minneapolis office. Later she worked for STSC for two years, and has now come back to Sharp. Most of her APL work has been in Financial Planning, Market Research and Statistical Analysis.

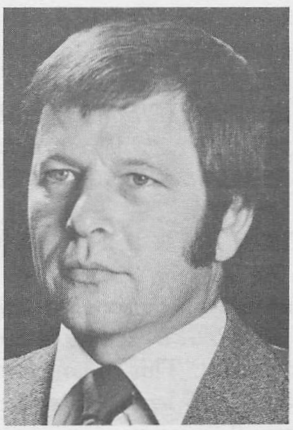
Karen Kreitzer

ZURICH

The new Branch Manager in our Zurich office is **Alois Dermond**. Alois takes over from **Mike Reidel** who has joined **G.H. Robinson** in Duesseldorf.

His first experience in the data processing field was with Bull General Electric - first in sales, and later opened their first time sharing centre (with MarK I GE 265's). During this time he was also involved in selling minicomputers. In 1975 Alois opened the Swiss office for Cyphernetics. He has considerable experience with various programming languages including Fortan and Basic, and adds APL this year.

Alois Dermond



SYSTEM RELIABILITY Bill Apsit, Toronto

	No. Downs	Minutes Down	Sched. Hrs.	% Up
Year Totals 77	95	1137	46457	99.7
1st Quarter 77	27	220	1581	99.8
2nd Quarter 77	16	286	1612	99.7
3rd Quarter 77	33	393	1643	99.6
4th Quarter 77	19	238	1621	99.8
1st Quarter 78	25	346	1603	99.6
Monthly				
December 77	3	28	549	99.8
January 78	5	62	545	99.8
February 78	8	125	496	99.6
March 78	12	159	562	99.6

DATA BASE NEWS

CURRENCY DATA BASE - ZURICH MARKET ADDED

Bob Dabrowski

The Currency Data Base has been expanded by the addition of the Zurich market. This brings the total number of markets to four - London, New York, Toronto and Zurich. Zurich data differs slightly in that both buy and sell rates are quoted. The symbol make-up changes accordingly so that any Zurich symbol is formed by *Z*, a *B* **or** *S*, and a country-symbol.

For example:

ZBUSA	Buy rates for U.S.A.
ZSCAN	Sell, Canada
ZBITA	Buy, Italy

The other markets omit the buy or sell rate indicator since all their values represent the **buy** rate. For the sake of consistency, the *EXCHANGE* function will accept the *B* indicator. For example:

```
R←780410 EXCHANGE 'NBEL'
```

will return the same result as

```
R←780410 EXCHANGE 'NBBEL'
```

CHANGE TO *CURRENCY* IN MAGIC

It has been pointed out by several users that the access function in 39 *MAGIC* to the Currency Data Base was treating the *AVERAGES* setting incorrectly. In the first implementation, any use of *CURRENCY* caused *AVERAGES* to be set. This is no longer the case:

- If *AVERAGES* has been set the data retrieved will represent the average rates for the currency desired.
- If **any** other setting is used then the last reported rate for the period(s) requested is returned.

The *AVERAGES* setting is no longer modified by *CURRENCY*.

UNITED KINGDOM CSO Data Bank - A manual is now available for users interested in financial and economic data from the U.K. Central Statistics Office.

AN EXTENSION TO THE ACTUARIAL DATABASE

Jerry Cudeck, Toronto

The 1964 Commissioners Disability Table is now available on-line. It was decided as a matter of policy that the residence of this table should not be '123 *MORTABS*'. Those of you who are familiar with the construction of Continuance Tables will readily appreciate that their form is not amenable to manipulation by *ACTPAK* functions. Accordingly, it was decided that a new file be created. The new file is called '123 *MISCTABS*'. It's first component is a character array directory. Subsequent components will contain packages. Included in each package will be:

- the full table name, (stored in *TNAME*),
- an abbreviated version of the table name, (stored in *ABBREV*)
- an overall description of the table including notes on usage, (stored in *DESCRIPTION*),
- the complete table, (stored in *TABLE*), and
- auxiliary variables where deemed necessary.

In time, it is anticipated that '123 *MISCTABS*' will house not only disability tables, but also tables containing sickness and accident information as well as data of interest to the casualty actuary.

A word of caution is in order. Since there is no uniformity in the manner in which these miscellaneous tables are published, we shall make every effort to store them on file exactly as they appear in their published versions. No generalized system to manipulate the various different table forms will be forthcoming for some time. The onus is on the user to either be familiar with the table construction, or to avail himself of the *DESCRIPTION* stored in the package containing the *TABLE*. In a word, file '123 *MISCTABS*' is not intended for the APL novice.

More information on the 64*CDT* can be obtained by entering the following:

```
'123 MISCTABS'⎕STIE TIE∆NO ◇ 'DESCRIPTION' ⎕PDEF ⎕READ TIE∆NO,2 ◇ DESCRIPTION
```

Any comments, criticism, or suggestions concerning '123 *MISCTABS*' and its contents are warmly welcomed.

BANKS DATA BASE UPDATE

Marc Odho, Toronto

Bank of Canada Weekly Statistics Data Base

The Bank of Canada recently changed its procedure for calculating the amount of float to be deducted to obtain "demand deposits" and the various monetary aggregates. Previously the entire amount of the "estimated float" affecting the chartered bank assets and liabilities had been deducted from gross demand deposits. Now only the "estimated private float" is deducted. Estimated private float is the total float adjusted to exclude estimated float relating to Government of Canada and Bank of Canada transactions. This has resulted in the addition of fact 224 "Chartered Bank - estimated private float" to the data base. Facts 218, 219, 221, 222, 223, 302, 303, 304 and 305 have been restated back to January 7, 1976.

(cont.)

BANKS DATA BASE UPDATE

The fact descriptions for all facts in the Bank of Canada Weekly Statistics Data Base now contain the CANSIM* number in the first six columns of each description, where valid.

Chartered Banks Monthly Data Base

The date function *BMONTH* in the workspace 54 *MBANKS* has been modified to accept three types of right argument to make it consistent with similar date functions associated with the annual and quarterly chartered bank data bases. See on-line *DESCRIBE* for details.

Chartered Banks Quarterly Data Base

This data base has been extended to include the two new chartered banks "**Canadian Commercial and Industrial**" and "**Northland**". The Computer Service Department of the Financial Post will be entering the data as it becomes available from the banks. The two report-generating functions *QBREPORT* and *QBREPORT*1 in the workspace 54 *QBANKS* have been converted to use *HSPRINT* and now prompt the user for delivery instructions.

CANSIM* NEWS (PLEASE CHECK THE SPECIAL NEWS WORKSPACE 81 *CSNEWS*)

Changes to Property and Casualty Insurance Data - Matrix 3797

Structural changes have been made to some of the series in matrix 3797 - property and casualty insurance companies - quarterly statement of assets. The two series involved in this change are D861891 and D862838. D861891 has been terminated and as of the second quarter of 1977 D862838 includes the figures relating to D861891.

For further changes please contact the financial institutions Division of Statistics Canada.

Annual Flows and Year-end Financial Assets and Liabilities Data

All series in matrices 751 through 790 are now available as part of the I.P. Sharp CANSIM Mini Base Supplement. The data are from 1961 for all sectors and subsectors.

New Release of CANSIM Mini Base Available after April 3

The contents of the CANSIM Mini Base are reviewed every six months. An amendment to the 1977 **CANSIM Mini Base Series Directory** will have been sent out by Statistics Canada during March of this year. If you did not receive a copy please contact your SHARP APL representative.

Chartered Banks Assets and Liabilities - Matrix 913

After the amendment to the Directory was printed, the following changes to Matrix 913 (Chartered Banks - Assets and Liabilities) were made on the CANSIM Main Base:

B 460 -	Estimated Canadian Dollar Items in Transit (Net) - the series number 2.1 has been changed to 10.
B 458 -	Total Canadian Dollar Deposits (Less Float). This series has been deleted.
B 459 -	Demand Deposits (Less Float) - has been deleted.

*CANSIM is the registered Trade Mark for Statistics Canada's machine-readable data base. When publishing any data retrieved from CANSIM, the following must be used as the source:
"These data originate from CANSIM which is a registered Trade Mark for Statistics Canada's machine-readable data base."

COURSES

Introduction to APL:	APR	MAY	JUN	JUL	AUG	SEP
BOSTON			20-23	25-28	22-25	
CALGARY (5 sessions)	25,26,	3,10,17				
EDMONTON (5 sessions)			5,6,7,13,20			
MINNEAPOLIS		09-11	13-15	18-20		
(6 half-day sessions)		16-18	20-22	25-27		
OTTAWA		01-05	05-09	03-07	07-11	11-15
ROCHESTER		15-19	19-23	17-21	21-24	25-29
TORONTO		08-10	19-21	03-05	14-16	05-07
		29-31		24-26		
U.K. (LONDON)		15-17	12-14	10-12	14-16	11-13
(WARRINGTON)			26-28		21-23	
WINNIPEG		23,24,30,31	26-29			

Intermediate:

TORONTO (2 days)	May 22,23	Jul. 31-Aug.1	Sep. 28-29
OTTAWA	Jun. 19	Jul. 17	
DUESSELDORF	May 8-10		

Advanced:

BOSTON		Jun. 8-9	Jun. 13-14 Aug. 10-11
TORONTO	'Advanced APL and Efficient Coding Techniques'	Jun. 29-30	Sep. 18-19
U.K. (LONDON)	'APL System Design'	May 11-12	Jul. 6-7
WINNIPEG		On request	

Special Courses:

TORONTO	'APL for Managers'	Jun. 29-30	Aug. 2-3
LONDON	Appreciation of APL (one day)	On request	
AMSTERDAM - in Dutch, with lunch on the beach, weather permitting.			Jun 14-16
DUESSELDORF/VIENNA/ZURICH		In German, scheduled on demand.	

Seminars

BOSTON	'Designing APL Business Systems'	May 1	Jun. 5	Jul. 10
	'Implementing APL Business Systems'	May 8	Jun. 12	Jul. 17
	'Interactive Business Systems'	May 15	Jun. 19	Jul. 24
	'Using Arrays, Packages and Files'	May 22	Jun. 26	Jul. 31
CALGARY	'Magic for Time Series Analysis'	On request		
	'Saving Money with N-tasks and B-tasks'	On request		
EDMONTON	'Forecasting in SHARP APL'	May 11		
	'Origins of APL' (video-tape presentation)	May 23		
	'Regression Analysis in APL'	On request		
MINNEAPOLIS	'APL in Financial Modelling'	On request		
	'What is APL?'	On request		
OTTAWA	'New Features of SHARP APL'	Jun. 20	Jul. 18	
	'Advanced File Design and Usage'	Jun. 21	Jul. 19	
	'Input Considerations (Idiot Proofing)'	Jun. 22am	Jul. 20am	
	'Program Design for Highspeed Printing'	Jun. 22pm	Jul. 20pm	
	'Non-terminal tasks'	Jun. 23	Jul. 21	
TORONTO	'MAGIC for Time Series Analysis'	May 11	Jun. 8	Jul. 6
	'Data Base Design'	May 24	Jul. 27	Sep. 27
	'Actuarial APL Techniques'	Jun. 13		Sep. 19
	'AIDS' (one and a half days)	Apr. 25	Jun. 27	Sep. 26
	'Mathematics of Mortgages and Bonds'	Jul. 19		Sep.13
	'Graphics'	May 17	Aug. 17	
	'Plotting with SHARP APL'	May 25	Jul. 18	Sep. 21
	'Report Formatting with SHARP APL'	Jun. 6	Jul. 11	Aug. 8
	'Box-Jenkins'	Jun.1		Sep. 8
	'Regression Analysis'	Jun. 22	Aug. 23	
	'Forecasting Methods'	Jul. 26		Sep. 11
	'Saving Money with N-tasks and B-tasks'	May 15	Jul. 13	Sep. 14
U.K. (LONDON)	'MAGIC for Time Series Analysis'	On request		
	'Introduction to the SHARP APL system'	On request		
VANCOUVER	'APL Users' Seminars'	Monthly		
WINNIPEG	'MAGIC for Time Series Analysis'	On request, as are other		
	'Statistics and SHARP APL'	topics - please contact		
	'Data Bases and SHARP APL'	Winnipeg office		

UPDATE

☐ Please amend my mailing address as indicated.

☐ Add to your mailing list the following name(s).

☐ Send me a SHARP APL publications order form.

Name: _____

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I.P. Sharp Associates **Head Office:** 145 King Street West, Toronto, Canada M5H 1J8 (416) 364-5361

International Branch Offices

Amsterdam
Intersystems B.V.
Herengracht 244
1016 BT Amsterdam
The Netherlands
(020) 24 40 50
Telex: 18795 ITS NL

Atlanta
I.P. Sharp Associates, Inc.
Suite H-10
2550 Akers Mill Rd. N.W.
Atlanta, Georgia 30339
(404) 953-1020

Birmingham
I.P. Sharp Associates Limited
2nd Floor, Radio House
79/81 Aston Rd. North
Birmingham B6 4BX
England
021-359-6964

Boston
I.P. Sharp Associates, Inc.
Suite 812
148 State St.
Boston, Mass. 02109
(617) 523-2506

Brussels
I.P. Sharp Europe S.A.
Ave. General de Gaulle, 39
1050 Bruxelles, Belgium
(02) 649 99 77

Calgary
I.P. Sharp Associates Limited
Suite 2660, Scotia Centre
700-2nd St. S.W.
Calgary, Alberta T2P 2W2
(403) 265-7730

Chicago
I.P. Sharp Associates, Inc.
2 North Riverside Plaza
Room 1746
Chicago, Illinois 60606
(312) 648-1730

Cleveland
I.P. Sharp Associates, Inc.
Suite 316, 24200 Chagrin Blvd.
Beachwood, Ohio 44122
(216) 464-3578

Copenhagen
I.P. Sharp ApS
Ostergade 24B
1100 Copenhagen K
Denmark
(01) 112 434

Dallas
I.P. Sharp Associates, Inc.
Suite 1148, Campbell Center
8350 Northcentral Expressway
Dallas, Texas 75206
(214) 369-1131

Düsseldorf
I.P. Sharp GmbH
Leostrasse 62A
4000 Düsseldorf 11
West Germany
(0211) 57 50 16

Edmonton
I.P. Sharp Associates Limited
Suite 505, 10065 Jasper Ave.
Edmonton, Alberta T5J 3B1
(403) 428-6744

Gloucester
I.P. Sharp Associates Limited
29 Northgate St.
Gloucester, England
0452 28106

Houston
I.P. Sharp Associates, Inc.
Suite 405, One Corporate Square
2600 Southwest Freeway
Houston, Texas 77098
(713) 526-5275

London, Canada
I.P. Sharp Associates Limited
Suite 510, 220 Dundas St.
London, Ontario N6A 1H3
(519) 434-2426

London, England
I.P. Sharp Associates Limited
132 Buckingham Palace Rd.
London SW1W 9SA
England
(01) 730-0361

Los Angeles
I.P. Sharp Associates, Inc.
Sherman Terrace Bldg.
18040 Sherman Way
Suite 118
Reseda, Ca. 91335

Miami Lakes
I.P. Sharp Associates, Inc.
Suite D, Kennedy Bldg.
14560 N.W. 60th Avenue
Miami Lakes, Florida 33014
(305) 556-0577

Minneapolis
I.P. Sharp Associates, Inc.
Suite 1371, 1 Appletree Square
Bloomington, Minn. 55420
(612) 854-3405

Montreal
I.P. Sharp Associates Limited
Suite 1610,
555 Dorchester Blvd. W.
Montreal, Quebec H2Z 1B1
(514) 866-4981

New York City
I.P. Sharp Associates, Inc.
Suite 250, East Mezz.
Pan Am Bldg.
New York, N.Y. 10017
(212) 986-3366

Newport Beach
I.P. Sharp Associates, Inc.
Suite 1135, 610 Newport Center Dr.
Newport Beach, Ca. 92660
(714) 644-5112

Ottawa
I.P. Sharp Associates Limited
Suite 600, 265 Carling Ave.
Ottawa, Ontario K1S 2E1
(613) 236-9942

Palo Alto
I.P. Sharp Associates, Inc.
Suite 201, 220 California Ave.
Palo Alto, Ca. 94306
(415) 327-1700

Philadelphia
I.P. Sharp Associates, Inc.
Suite 407, 1420 Walnut Street
Philadelphia, PA. 19102
(215) 735-3327

Rochester
I.P. Sharp Associates, Inc.
Suite 1150, 183 Main St. E.
Rochester, N.Y. 14604
(716) 546-7270

San Francisco
I.P. Sharp Associates, Inc.
Suite C409, 900 North Point St.
San Francisco, Ca. 94109
(415) 673-4930

Seattle
I.P. Sharp Associates, Inc.
Suite 217, Executive Plaza East
12835 Bellevue-Redmond Rd.
Bellevue, Wa. 98005
(206) 453-1661

Stockholm
I.P. Sharp AB
Kungsgatan 65
S111 22 Stockholm, Sweden
(08) 21 10 19

Sydney
I.P. Sharp Associates Pty. Ltd.
Suite 1342, 175 Pitt Street
Sydney, N.S.W., Australia 2000
(02) 232-5914

Toronto
I.P. Sharp Associates Limited
145 King Street West
Toronto, Ontario M5H 1J8
(416) 364-5361

Vancouver
I.P. Sharp Associates Limited
Suite 604, 1112 West Pender St.
Vancouver, B.C. V6E 2S1
(604) 682-7158

Vienna
I.P. Sharp Ges. MbA
Rechte Wienzeile 5/II
3 Wien, Austria
(222) 576-571

Warrington
I.P. Sharp Associates Limited
48A Horsemarket Street
Warrington, Cheshire
England WA1 1XL
(0925) 55342

Washington
I.P. Sharp Associates, Inc.
Suite 307, 1730 K Street N.W.
Washington, D.C. 20006
(202) 293-2915

Winnipeg
I.P. Sharp Associates Limited
Suite 909, 213 Notre Dame Ave.
Winnipeg, Manitoba R3B 1N3
(204) 947-1241

Zurich
I.P. Sharp A.G.
Badenerstrasse 141
8004 Zürich
Switzerland
241 52 42

SHARP APL Communications Network: Local Access Cities

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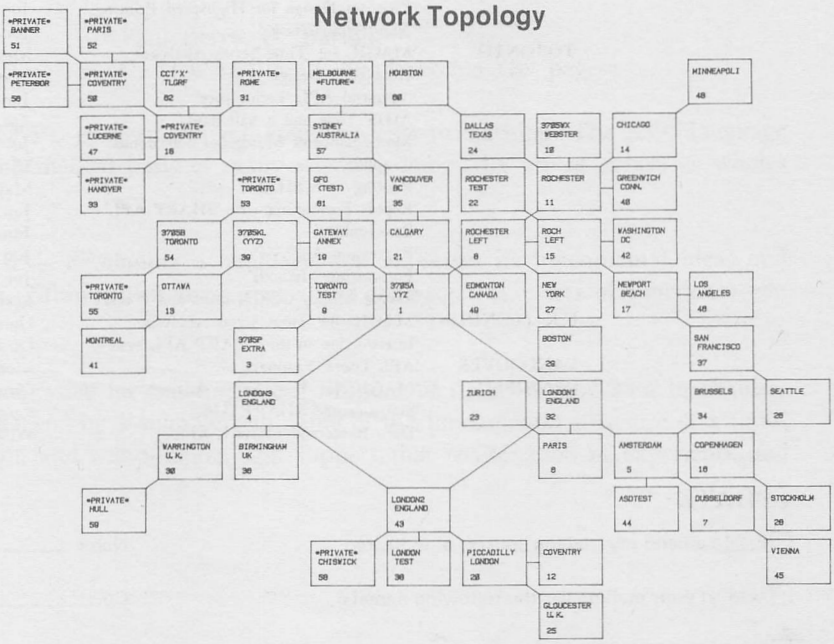
Local dial access is available in all locations listed above. The SHARP APL Communications Network also provides local dial access in:

- Anne Arbor
- Buffalo
- Coventry
- Dayton
- Des Moines
- Greene (NY)
- Halifax
- Hamilton
- Kitchener
- Liverpool
- Los Angeles
- Manchester
- Milan
- Paris
- Raleigh
- Regina
- Saskatoon
- Syracuse
- Victoria
- White Plains (NY)

In the United States the SHARP APL Network is interconnected with the networks of TYMNET and TELENET to provide local dial access in more than 100 other cities.

Network Topology



The Newsletter is a regular publication of I.P. Sharp Associates. Contributions and comments are welcome and should be addressed to: Jeanne Gershater, I.P. Sharp Newsletter, 145 King Street West, Toronto, Canada M5H 1J8.

Jeanne Gershater, *Editor* Ginger Kahn, *Assistant Editor*