STN EXPRESS:
SEARCH AID SOFTWARE FOR CHEMICAL SEARCHING

PETER BRUEGGEMAN
UCSD SCRIPPS INSTITUTION OF OCEANOGRAPHY LIBRARY

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STN Express incorporates many features common to software used for regular database searching and chemical structure searching and then adds some significant new ones. STN Express has some features similar to those found in Dialoglink and ProSearch search aid software. Search aid software (aka frontend software) can be thought of as glorified telecommunications software offering features designed expressly for the needs of the database searcher (autodial, autologon, offline search strategy preparation, saved searches, typeahead while online, backscrolling of session transcript while online, multiple downloading and printing options, postprocess editing of search results, etc). STN Express can also display chemical structures in an elegant graphics-mode display like the graphics-based telecommunications software commonly used for chemical structure searching of STN's Chemical Abstracts Registry file (STN Communicator, PCPLOT III, Emu-Tek). STN Express brings several new features including a mouse-driven software interface and most notably brings offline chemical structure creation to the searcher's toolkit. Before the advent of STN Express, chemical structures were created online with the structure-building software mounted on STN's mainframe computer. If a searcher was using graphics-based telecommunications software for chemical structure searching, the software simply displayed what was being built on the STN host computer. Now, STN Express provides the chemical structure searcher with software that actually builds the chemical structure locally on the searcher's microcomputer. The searcher creates structures while offline and then uploads them onto the STN host computer when online.

This review of STN Express will draw comparisons from the author's experience with text-based search aid software and graphics-based telecommunications software. For text-based searching, the author uses Dialoglink and is familiar with ProSearch. For graphics-based searching, the author uses STN Communicator and PCPLOT III. Different experiences of others may suggest qualification/modification of the author's evaluation and comment is invited in the forum of DATABASE SEARCHER.

INSTALLATION

STN Express documentation advises that installation proceed from backup

disks and not from the master disks. Installation would not work from the author's backups and STN Express had to be installed from the masters. Installation of STN Express is straightforward since it is designed to be user-friendly. The context-sensitive help information offered during installation is magnificent and sets an example that other software should follow. The help information regarding the "location of path definition" incorrectly refers to a "AUTOEXEC.SYS" file; the correct file name is CONFIG.SYS. REM (remark) statements are inserted in the microcomputer's AUTOEXEC.BAT when the installation process modifies the AUTOEXEC.BAT file; thus one knows from whence the funny business appeared. The AUTOEXEC.BAT file is a key element of a microcomputer and it is helpful to understand the function of each line in it and what software it relates to. Usually software installations put something in the AUTOEXEC.BAT file with no explanation; STN Express is polite about it.

LOGON

STN Express will automatically connect (autodial/autologon) onto STN, BRS, ESA, and Dialog databanks utilizing multi-telecommunication network access via CompuServe, Telenet, and Tymnet. Dialnet is not a network option. STN Express accesses other databanks via terminal emulation wherein connection is a manual process and not automatic; both Dialoglink and ProSearch support automatic connection to any databank. ProSearch supports multinetwork access to Dialog and BRS while egocentric Dialoglink does not support multinetwork access to any non-Dialog databank. STN Express gets extra points for recognizing the need for multinetwork access by searchers; it supports multinetwork access to four databanks. STN Express stalled upon logon into STN a few times. The author could not start typing at the STN system prompt (=>) and the BREAK command would not release. STN Express enters initial commands on its own at the first STN prompt; sometimes these do not get entered properly. Logoff and try again.

GUIDED SEARCH

STN Express offers a "guided search" feature which allows less-experienced searchers to search STN without knowing the files available or the command language. ProSearch offers a similar feature with its file selection assistance and high level interface. STN Express documentation does not gloss over enduser searching with marketing hype. The guided searching documentation states twice that the searcher should consult an information professional within the organization (or at the STN Search Assistance Desk) if expected results are not being retrieved. STN Express' guided searching starts by asking the searcher to choose a field of interest: CHEMISTRY, PHYSICS, ENERGY, PATENTS, ENGINEERING, BIOLOGY, COMPUTERS/MATH, METALS) and then offers a series of menus to define the search. STN Express offers STN

file selection assistance either by listing appropriate STN files or by automatically selecting a STN file depending on the type of information desired. For example, select "CHEMISTRY" and a menu appears asking for a definition of the type of information desired: CITATIONS FROM CHEMICAL ABSTRACTS FILE USING STRUCTURE AND SUBJECT; STRUCTURE INFORMATION FROM CHEMICAL ABSTRACTS REGISTRY FILE; CHEMICAL REACTION INFORMATION FROM CASREACT FILE; and, INFORMATION FROM OTHER STN FILES USING SUBJECT TERMS. Select "CITATIONS FROM CHEMICAL ABSTRACTS FILE USING STRUCTURE AND SUBJECT" and a menu appears to define the nature of the guided search to "SUBJECT", "DOCUMENT", "CHEMISTRY", or "DONE" (finished). Select "SUBJECT" and a template appears for entry of the search terms associated with one search concept (the "or" command). Following templates can be used to "and" terms associated with additional search concepts (figure 1). Select "DOCUMENT" and the guided search can be limited to author, language, year, or publication type. Select "CHEMISTRY" to include substance names, molecular formulas, chemical structure, or Chemical Abstracts Registry Numbers in the guided search. When finished, select "DONE". Guided searches can be saved and/or executed. Guided searchers can review the completed search encoded in its actual STN command format; thus guided searching can be used as a tool to learn STN searching. Experienced searchers will probably not use the guided search option.

TYPEAHEAD

Once online, the typeahead feature of STN Express is different than that of Dialoglink and ProSearch. When the searcher types ahead, the characters are not displayed onscreen; the searcher can typeahead many command lines and not see what commands have been typed ahead. A command line that was typed ahead only displays when the system prompt appears and it is that line's turn in the typeahead queue. This primitive typeahead feature presents problems in that there is no chance to catch typing mistakes before a command line is sent to STN. Since STN Express' typeahead does not display, it is useful only for experienced typists or for typing ahead a few lines (preferably simple lines).

OFFLINE SEARCH STRATEGIES

Offline text-based search strategies ("command files") are created by STN Express using the searcher's wordprocessing software rather than an editor internal to the STN Express software. This approach differs from Dialoglink and ProSearch which have their own internal editor for wordprocessing strategies for subsequent uploading. STN Express' approach is well-intentioned but risky. The searcher does not have to learn the commands of two wordprocessors but the risk for problems increases since STN Express has to interact with something external to itself. After a lot of dinking, the author could not get STN Express

to access his wordprocessing software and will be calling STN for assistance. As with Dialoglink and ProSearch, ASCII search strategy files with the correct CMF file extension can be created before loading STN Express for subsequent uploading by STN Express.

STN Express is quite advanced compared to Dialoglink and ProSearch with regard to its script language that can be incorporated into an offline textual search strategy. Local comments or reminders can be entered into a strategy so that they will display onscreen but not upload to the databank. A search statement can be continued onto the next physical line. Since STN has a main system prompt (=>) and a secondary system prompt (:) instead of one consistent system prompt (eg Dialog's ?), offline search strategies can be scripted to respond to specific prompts. Accommodating STN's two system prompts within an offline search strategy requires that the searcher have experience and omniscience in order to know when the secondary prompt will appear in a search strategy. The scripting language's strongest feature is the ability to incorporate variables within strategies that represent a search set number or the number of answers retrieved by a search set! When creating offline search strategies, the searcher does not know all of these so a search aid software that can incorporate variables for set numbers and answers is very impressive. Up to 25 variables can be assigned with alphanumeric names of up to ten characters. Dialoglink and ProSearch can take a lesson from STN Express' scripting language.

For convenience, specialized predefined search strategies (hedges) for various topics are supplied with STN Express and accessible while online or offline. Hedges are conceptual in nature (figure 2) and are supplied for four STN files with all but three of the hedges being for Chemical Abstracts and RSWB (a civil engineering database). These predefined search strategies can be modified or deleted and the searcher can create new predefined search strategies whose names will appear in the predefined search strategy menu.

OFFLINE STRUCTURE QUERIES

Search strategies that are chemical structure queries can be created locally with a mouse for subsequent uploading. Offline structure creation offers convenience and cost saving but offline-created structures cannot be subsequently modified with STN's STRUCTURE command while online. If a searcher is searching a number of related chemical structures each sharing a reusable substructure, all of the related structures have to be created locally with STN Express. A big advantage in using STN Express to create related structures (rather than with STN's online STRUCTURE command) is that STN Express can create a new related structure locally while it is simultaneously connected online and STN is searching a previous structure. Since a structure search takes almost five minutes and usually represents

deadtime for a searcher, STN Express is a real timesaver for searchers doing a series of structure searches. Experienced structure searchers who can quickly build structures online using stacked commands may not be impressed with the structure creation capability of STN Express but will certainly appreciate the ability to simultaneously search-and-create. Searchers who search only one structure during a search session and can build structures quickly while online may not receive great benefit. Uploading an offline-created structure onto STN consumes approximately thirty seconds. If STN upgrades its computers to make structure searches execute quickly (under 1 minute), then this will reduce the benefit of simultaneous search-and-create for searchers who build structures quickly while online.

Building chemical structures with STN Express and a mouse is very different from the mouse-driven menu option for online structure building in Chemical Abstracts Registry file. STN Express is very sophisticated and impressive in its chemical structure building features. This review cannot begin to describe the power of STN Express for structure building; the manual devotes 134 of its over 350 pages to structure building. Like graphic painting software, the searcher will have to play with structure building for quite some time in order to become proficient.

Pulldown menus are utilized to access a wide range of structure building options. The basic menu choices displayed while structure building are ATOM, SHORTCUT, VARIABLE, TEMPLATE, BOND, DRAW, EDIT, and UTILITIES (figure 3). Each choice displays a pulldown menu with a subset of choices. The ATOM menu offers the full range of chemical elements for incorporation into chemical structures. The SHORTCUT menu offers 50 shorthands for various structural groups like phenyl, methyl, isopropyl, and carboxyl. The VARIABLE menu is used to assign groups of chemical elements or rings for specified positions within chemical structures. The TEMPLATE menu offers 26 submenus of compound types for access to a large number of prebuilt chemical substructures (figure 4). Grouped under submenu headings, these prebuilt structures (figure 5) can be used as shortcut templates on which the searcher will build a more complex chemical structure. The BOND menu is used to specify the nature of the bonds in a structure. The DRAW menu offers options to draw structural rings and chains, move and fuse structural fragments, duplicate a structure, define repeating structural groups, and define atomic charges. The EDIT menu offers deleting and various options to modify the overall onscreen representation of a structure. The UTILITIES menu is used to save, recall, and print structures and also to exit the structure building module of STN Express.

Descriptive text comments, stereochemical bonds, and arrows noting reaction direction between several onscreen structures can be noted onscreen in relation to the structures built; these notes will not

interfere with the online structure search. Since the screen displaying the structure(s) built can be printed, the ability to add related information that is not part of an online search is useful. Several structures can be built at one time onscreen to create several structure searches. Structures can be moved spatially, expanded, contracted, centered, flipped, rotated, saved, recalled, printed, and deleted. Structure building was fun already while online with STN's STRUCTURE command; STN Express radically expands the playground and adds a big jungle gym.

The next release of STN Express should include an "undo" feature similar to that seen in graphic painting software. "Undo" would allow the structure builder to back up one step in the event of a mistake. Without "undo" the structure builder has to erase the part of the structure added by the mistake; this may take several steps, involve additional mistakes, and create some personal anxiety. Since STN Express structure building presents the everpresent possibility for mistakes, an "undo" feature would enhance learning STN Express.

Future versions of STN Express should also include the capability to build structures with STN's textual STRUCTURE commands. Experienced searchers already have a considerable training investment in these commands and would appreciate the option to use them locally on their microcomputer with STN Express. Some microcomputer users dislike or are not comfortable with mouses. A mouse would not be required with STN Express if a textual STRUCTURE command option were available. For some searchers, removal of the additional cost of a mouse would reduce the entry cost for using STN Express.

REVIEW BUFFER

When searching in the online graphics-mode on the Chemical Abstracts Registry file, the search session transcript scrolls by page-by-page and online searchers have to press software-related keystrokes to advance page-by-page through a search session. STN Express supports continuous scrolling of graphics-mode screens in addition to paged scrolling; this is a new feature for searchers. STN Communicator and PCPLOT III provide only paged scrolling of graphics-mode screens. STN Express stores the most recent 30K of text- or graphics-mode screen display that scrolled by in a temporary RAM review buffer. STN Express' 30K buffer is miniscule compared to the large size of Dialoglink's and ProSearch's buffers which are limited only by the size of the microcomputer's total RAM. STN Communicator and PCPLOT III do not have review buffers. STN Express' review buffer can be paged and also scrolled item-by-item but cannot be scrolled line-by-line. Receipt of data from the databank is suspended when the searcher scrolls up into the review buffer. Dialoglink and ProSearch do not offer item-by-item scrolling but do offer paged and line-by-line

scrolling. STN Express' review buffer would be far more useful as a search aid if it were larger and supported after-the-fact printing or downloading-to-disk like Dialoglink and ProSearch provide. The searcher using STN Express must remember to start printing or downloading-to-disk before the desired information scrolls by onscreen. One of Dialoglink's and ProSearch's strongest points is their review buffer; the searcher is not required to remember to initiate an action (print, download) whose omission will result in costly duplication.

EDITING DOWNLOADED FILES

STN Express' download feature is accessed by a function key and downloaded files can be browsed or printed. Downloaded files that contain text as well as graphic structures can be edited and then printed. Downloaded files are edited by the searcher's wordprocessing software which must be able to edit ASCII files. STN Express has a SPLIT TEXT AND GRAPHICS option that separates the graphic structures from the text. A text file and a graphics file is created. The text file has tag lines inserted where each graphic structure would appear. STN Express uses these tag lines in the text file to call the graphics file in order to replace the tag lines with their corresponding graphic structures. These tag lines can be moved or deleted within the text file by wordprocessing software; this will shift or remove the appearance of graphic structures when the downloaded file is subsequently printed by STN Express.

EQUIPMENT CONCERNS

For single copies, STN Express costs $595 with an academic rate of $476 for qualifying institutions. Multiple copy discounts are available. STN Express runs on hard disk IBM PCs, ATs, PS/2s, 100% IBM compatibles, AT&T 6300, COMPAQ III, and Olivetti M24. STN Express asks the database searcher for a well-equipped microcomputer. STN Express needs MS-DOS/PC-DOS 3.0 or higher, at least 2 megabytes hard disk space, a graphics card (EGA, Hercules, VGA), a laser or dot-matrix printer, a mouse (Microsoft, Mouse Systems, PS/2, Microsoft compatible), and 510K of free RAM memory. Thus the microcomputer will need a full 640K RAM configuration. If some of the microcomputer's 640K RAM memory is already configured for a print spooling buffer, a disk cache software (eg Lightning), or various RAM memory-resident utilities (aka popup utilities or TSR "terminate-and-stay-resident" software) like Sidekick, then STN Express may not find the 510K free RAM memory that it needs. Usually software developers of memory-hungry software design their software to access additional RAM resources like LIM-expanded memory or AT-extended memory. Software developers recognize that microcomputers (particularly ATs) may have those extra RAM resources available and that RAM may have to be shared with other software. Because it is a memory-hungry beast, STN Express should be

able to access extra RAM memory in order to fulfill its appetite.

An AT or PS/2 is recommended for speed and efficiency. STN Express is complex software and will run with less zest on plain vanilla PCs. A PC running STN Express will have slight pauses after command input or between pulldown menu selections. While not a fatal flaw, these incessant pauses can be irritating. Since STN Express software involves considerable expense, searchers with a PC-XT need to seriously evaluate this speed issue to avoid unhappiness with stodgy software execution. For those already familiar with STN Communicator, the American Chemical Society's previous chemical structure searching software, it also epitomizes this performance issue.

MODEMS

STN Express can be configured for Hayes and Hayes-compatible modems, internal networks, and manual dial modems. Unfortunately STN Express does not offer modem selections for a wide variety of modem models like Dialoglink and ProSearch do; unfortunately it does not offer a manually-configured non-Hayes compatible modem selection like Dialoglink's and ProSearch's. Much to the author's surprise, a US Robotics Courier 2400 external modem would not work with STN Express' Hayes-compatible modem setting. This particular modem uses the Hayes AT extended command set which is the hallmark of Hayes-compatibility. Owners of non-Hayes compatible modems have to write a logon script file for STN Express' "internal network" modem option. Unfortunately, using the "internal network" option results in the loss of multiple network access to the STN databank.

LOGON SCRIPTS

STN Express documentation inadequately documents how to write a logon script file by giving only a Telenet example. Examples for Tymnet and CompuServe would have been easy to include. The author used the Telenet example as a model for creating a Tymnet logon script; the Telenet logon script includes STN's Telenet address. When a Tymnet logon script is written to include STN's Tymnet address, it will not work with STN Express. The reason is that STN Express takes over the logon transaction from the script file at a certain undocumented point; STN Express will enter the passwords and other unspecified pre-password logon details. For Tymnet, STN Express will complete the logon itself after the script simply tells the modem to dial the local Tymnet number. STN Express itself will send in the "a" character that Tymnet needs; the Tymnet logon script does not need to send the "a". If the Tymnet logon script includes the "a" and subsequent logon details, then STN Express gets confused and logon will not be completed.

The author's logon script for Tymnet is as follows:

```
BEGIN INTERNAL NETWORK DATA
ATZ
5

ATDT (insert your Tymnet number)
17

END INTERNAL NETWORK LOGIN DATA
BEGIN INTERNAL NETWORK LOGOFF DATA
+++<NO CR>
3

ATZ
3

END INTERNAL NETWORK LOGOFF DATA
```

PCPLOT III

PCPLOT III Version 3.620 costs $75 and provides graphics-terminal emulation capability for a microcomputer. A microcomputer needs graphics-terminal emulation for the display of graphics-mode chemical structures. The latest version of PCPLOT III is a vast improvement over earlier versions. Earlier versions of PCPLOT III resided in RAM memory, clashed with other software resident in RAM memory (print spoolers, disk cache, Sidekick, popup utilities, etc), and caused the microcomputer to freeze up when PCPLOT III was exited. A reboot was usually required. PCPLOT III runs on a wide range of microcomputers (IBMs, IBM compatibles, COMPAQs, AT&T PC6300, Leading Edge, Zenith Z-150+, HP Vectra, Sperry) with a wide range of graphics boards (including Hercules, CGA, EGA, VGA), with dot-matrix printers, laser printers and plotters. PCPLOT III does not require a hard disk whereas STN Express does. PCPLOT III executes quickly on plain vanilla PCs whereas STN Express and STN Communicator are stodgy. PCPLOT III uses the basic Hayes-compatible modem commands and supports a Microsoft or Mouse Systems mouse for online mouse-driven structure creation in STN's Chemical Abstracts Registry file. The author could not get a Microsoft mouse to work with PCPLOT III. The software and documentation offer overly complex mouse configuration information; configuration should be merely "yes" or "no" requiring no telephone calls to the software developer.

PCPLOT III offers the chemical structure searcher basic telecommunications software features (autodial, autologon, download, print) but does not offer the advanced features (particularly chemical structure creation) and ease of use of STN Express. PCPLOT III does

not offer the ease of use of STN Communicator or the advanced features of Dialoglink and ProSearch. So why use PCPLOT III? Even though PCPLOT III can be irritating to use, it offers basic graphics-mode utility for chemical structure searching at low cost. Basic graphics-mode utility can be defined as the graphics-mode display of chemical structures being searched and retrieved and the subsequent printing of the graphics-mode structures that were retrieved. Dialoglink and ProSearch can do neither of these and STN Communicator cannot print the graphics-mode structures that it retrieves. STN Express can do it all but at great expense. Until the American Chemical Society meets the market niche for a basic low-cost graphics-mode chemical structure searching software, PCPLOT III will continue to find a market.

PCPLOT III's autodial/autologon capability is primitive without sufficient character storage to encode an entire logon sequence including databank passwords; macros have to be used to finish the autologon task. Multinetwork access to databanks is not supported. PCPLOT III has the irritating look and feel of software designed by programmers without insight into the needs of the unwashed masses for simple-to-use software. Because the software is so versatile for different situations, configuration of PCPLOT III may not be simple. PCPLOT III commands are generated by an excess of two-key combinations. Even basic software commands like the phone directory, downloading, and printing use non-mnemonic two-key combinations instead of the simple use of single function keys. Each page of a graphics-mode search session has to be cleared with a tedious three-key operation: a two-key combination followed by a press of the enter key. This page-clearing function should have been designed around one function key because it is done frequently during a graphics-mode search session. PCPLOT III has a supplemental software entitled CASPRINT (available for $40) which supports higher resolution printing of a downloaded graphics-mode Chemical Abstracts Registry file session.

PCPLOT III is available from MICROPLOT, 659-H Park Meadow Road, Westerville, Ohio 43081. Phone number is (614)882-4786. A more advanced version entitled PCPLOT IV is also available for $149. PCPLOT IV has more features (PGA graphics, XMODEM & KERMIT file transfer, script files, keyboard remapping) but these features may not be needed by the chemical structure searcher.

EMU-TEK is a microcomputer-based graphics-terminal emulation software similar in function to PCPLOT III. EMU-TEK is available from GRAPHIC INNOVATIONS, 10801 Dale Street, Suite M-2, PO Box 615, Stanton, California 90680. Phone number is (714)995-3900.

STN COMMUNICATOR

STN Communicator is the chemical structure searching software marketed

by the American Chemical Society previous to the introduction of STN Express. STN Communicator costs $95 with an academic discount price of $75 for qualifying institutions. Multiple copy discounts are available. STN Communicator provides basic telecommunications features (autodial/autologon, downloading, printing) with graphics-terminal capability for the graphics-mode display of chemical structures. STN Communicator runs on IBM PCs and compatibles with 512K RAM and, like PCPLOT III, a hard disk is not required. MS-DOS/PC-DOS 3.0 or higher is required and a mouse (Microsoft, Mouse Systems, PS/2) can be used for graphics-mode structure creation while online in the Chemical Abstracts Registry file. A graphics board is needed if structures are to be displayed in graphics-mode; however STN Communicator does not require a graphics board if the searcher sticks to text-mode structure searching. As with STN Express, STN Communicator is stodgy in executing menu selections on PCs and is really better suited to ATs or PS/2s. Multinetwork access to databanks is supported by STN Communicator and STN Communicator was not so sensitive to the author's modem as STN Express was. STN Communicator is basically a stripped version of STN Express; it offers basic telecommunications software functions and graphics-mode display without the fancy extras. STN Communicator has pulldown menus like STN Express and the function keys access basic software commands (help, basic menu, download, print, clear page). Pages of a graphics-mode search session are cleared with one press of a function key compared to PCPLOT III's three-key sequence. Typeahead, saved searches, backscrolling of search sessions, or offline chemical structure building are not supported.

STN Communicator's one major flaw is that it cannot print the graphics-mode structures that it retrieves. It will print text-mode chemical structures but not graphics-mode structures. If graphics-mode structure printing were included, then STN Communicator would be a real winner because it would fill a market niche for a basic low-cost graphics-mode chemical structure searching software. Inquiry to STN revealed that STN Communicator will continue to be supported but will not be actively marketed. This is unfortunate because STN Communicator offers good value for its price and would be excellent value if it offered graphics-mode structure printing. The marketplace has room for both a high-end product like STN Express and a low-end product like STN Communicator. Searchers with access to other software with the ability to capture graphics-mode screens for subsequent printing may find STN Communicator all they need for chemical structure searching. Graphic painting software, desktop publishing software, and specialized screen printing software usually have graphic screen capture (aka frieze, grab) capability. Graphics-mode chemical structures displayed on the STN Communicator screen can be captured by another software for subsequent printing. The figures in this article were generated with screen capture software.

STN Communicator is much easier to configure and use than PCPLOT III; if the inability to print graphics-mode structures is not a deal-breaker, then STN Communicator is far better value than PCPLOT III. STN Communicator is very similar to the friendly look and feel of STN Express. Since STN Communicator has less features than STN Express, it is easier to learn and use. The learning task represented by STN Communicator's 50 page manual is modest compared to the task presented by STN Express' manual of over 350 pages.

DIALOGLINK & PROSEARCH

Database searchers who do only text-mode searching of the Chemical Abstracts Registry file or of the Chemical Abstracts file itself are well-served by using text-oriented search aid software like Dialoglink or ProSearch rather than using graphics-based software like STN Express et al. Both search aid software offer more search aid features and comparable features are usually more advanced and easier to use. Their typeahead is visible as opposed to the invisible typeahead of STN Express and no typeahead of STN Communicator/PCPLOT III. Their search session buffer is relatively unlimited in size compared to STN Express' limited 30K size and STN Communicator/PCPLOT III's lack of buffer. Backscrolling of their search session buffer can be line-by-line in addition to the other cursor keys. STN Express cannot line-by-line scroll but it can scroll item-by-item which Dialoglink and ProSearch do not. STN Express does not support marking and subsequent printing/downloading-to-disk of its 30K search session buffer. Dialoglink offers particular value compared to STN Express or ProSearch since its cost is so much less. There is an additional advantage in sticking to text mode for searching Chemical Abstracts Registry file and other structure files; a search session scrolls by and thus downloads much more quickly in text mode than in graphics mode. Connect time is thus reduced.

WHICH SOFTWARE TO USE?

Determining the need for STN Express depends on the individual. Fans of mouses and high-tech searching software will be delighted. For inexperienced searchers of Chemical Abstracts and other databases on the STN databank, STN Express offers great utility for both structure searchers and non-structure searchers in both graphics-mode and text-mode. STN Express makes an excellent start at making STN and Chemical Abstracts searching easier. For experienced chemical structure searchers of Chemical Abstracts Registry file and other databases on the STN databank, STN Express should be examined in context with the searcher's need for offline structure creation and the need for graphics-mode display and graphics-mode printing of chemical structures. If the searcher is proficient at quickly building structures with online commands and searches only one structure in a

search session, then the offline structure creation feature of STN Express may not be necessary. If the searcher searches several structures in one search session, then offline structure creation is probably desirable and STN Express is the only game in town.

If the searcher can forego offline structure creation, then other software may be viable alternatives. If cost is a concern and if a basic software for graphics-mode display and graphics-mode printing of structures is needed, then PCPLOT III or EMU-TEK will work fine. If cost is of less concern and the structure searcher wants graphics-mode display and graphics-mode printing of structures, then purchase of STN Express is worth consideration. If cost is a concern and if a basic software with only graphics-mode display is acceptable (no graphics-mode printing), then STN Communicator offers excellent value. Disregarding graphics-mode structure printing, STN Communicator is better than PCPLOT III or EMU-TEK due to its ease of use. With augmentation by additional software that can capture graphics-mode screens for subsequent printing, STN Communicator becomes a complete but basic low-cost tool for structure searching. A low-tech STN Communicator alternative to capturing and printing screens is simply to text-mode print the structures retrieved by STN Communicator.

For some structure searchers and all non-structure searchers, the ability to display chemical structures in graphics-mode and print graphics-mode structures may not be a major concern. Text-mode structure display and text-mode printing may be acceptable to some structure searchers; non-structure searchers should already be searching in text-mode only. Searching in text-mode rather than graphics-mode has a major advantage; text-mode has a much higher onscreen scroll rate than graphics-mode. Search sessions move quicker and references download much quicker. When connect time is being charged, this is a major issue. Text-mode searchers will probably be better served by Dialoglink or ProSearch search aid software with their better-developed features. When STN Express is viewed in the role of a search aid software being used to access non-STN databanks, it is very limited compared to other search aid software.

The author greatly appreciates the American Chemical Society's effort in undertaking the development of STN Express and thanks the Society for providing a review copy. With the Society's track record, future versions of their chemical structure searching software will certainly bring exciting developments.