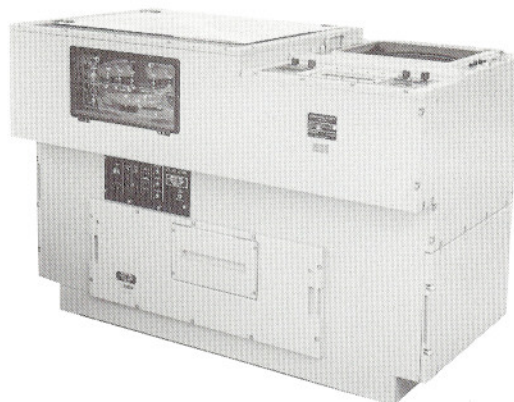


# Librascope's New Generation Submarine Combat Control System (SCCS)



**Librascope's New Submarine Combat Control System (SCCS)** – currently in development for the Royal Australian Navy. Shown above are the Multifunction Common Consoles (MFCC), and the Command Plot (center). The system consists of 7 MFCC's, 1 Command Plot, 2 Weapon Data Converters, and 4 Plasma Panels. This combat equipment will be installed on the Royal Australian Navy's new construction type 471 submarine designed by Kockums Shipbuilders in Malmo, Sweden.

## Librascope's New SCCS - An Integral Part of Australia's New Construction Submarine Project

The Royal Australian Navy has an extraordinarily large coastline to patrol, an entire continent to protect, and a widespread oceanic threat of action.

The goal of the new construction submarine project is a class of Australian-built submarines capable of meeting these challenges with operational effectiveness, improved operability, rapid response time, reduced manning, flexibility to accommodate a wide range of missions, and the ability for expansion and improvement to counter a widening range of emerging threats.

The purpose of a combat system is to detect, track, identify, and destroy the enemy. The rapid expansion of

technology in sensors, weapons, and in data handling now poses a special challenge in the procurement of submarines. Even the most experienced shipbuilders, equipment suppliers, and naval staffs have difficulty in maintaining the resources necessary for total mastery of these evolving technologies and their applications to submarine construction.

### Combat System Design Concept . . .

As part of the overall Submarine Combat System being developed by prime contractor Rockwell Ship Systems, Librascope's SCCS equipment designed for the Royal Australian Navy provides a fully integrated combat system which will meet these challenges and fulfill Australia's requirements.

*Continued on Pg. 2*

ENJOY  
A  
SAFE  
&  
HAPPY  
FOURTH  
OF  
JULY!



# New Generation Combat Control System

(Continued from Page 1)

To implement the RAN's philosophy of modular design and to provide necessary growth, the system has been designed around a concept of smart multifunction common consoles (MFCCs).

In this architecture, each MFCC contains both the resident software and processing capacity to perform all of the essential combat system functions. This simplifies the design, provides for rapid functional reconfiguration, minimizes contention, and eliminates the risks associated with continuous communication over a data bus to a centralized computer complex.

The combat control system being designed and developed by Librascope for each RAN submarine includes: 7 multifunction common consoles, 2 weapon data converters, 4 plasma displays, and 1 command plotting console.

## Multifunction Common Consoles (MFCC)...

Each multifunction common console contains the resident software and processing capability to perform all of the essential combat system functions.

The advanced multifunction console is a powerful, general purpose display console which is designed around multiple MC68020 microprocessors which provide state-of-the-art processing power. The adaptable, reconfigurable console readily supports TV/video, active and passive sonar data, and radar as well as tactical graphic images.

Operator interface is through the 19-inch diagonal full color CRT's (touch screens) with 1280 x 1024 resolution; an 8-inch text and graphic electroluminescent (EL) panel with programmable touch screen keyboard, 4 shaft encoders and a trackball. The unit contains a maintenance panel for diagnostics and is water cooled.

The MFCC provides the primary workstation and operator interface

with the RAN Combat Control system. Each console has equal capability to undertake any of the tasks of the combat system, from radar/sonar, surveillance, navigation, threat prosecution, and weapon control, to maintenance and training work.



Ed Nickamp, seated, Sr. Engineer, and Arnold Peters, Program Manager, perform operational tests on a Multifunction Common Console (MFCC).

## Weapon Data Converter (WDC)...

The Weapon Data Converter (WDC) provides weapon and launch system data processing and conversion. Each WDC provides the fire control for torpedo tubes and decoy launchers, and their respective weapons. Primary offensive weapon capability includes the modern submarine weapons (torpedoes and missiles) currently in the RAN inventory, with growth provision for update of those weapons and/or future growth deployment.

## Plasma Display Unit (PDU)...

The Plasma Display (PDU) unit contains a 432mm x 216mm plasma panel with associated drive electronics. The display is equipped with a touch

overly switch which provides 1800 individual switch areas approximately 6.6 x 6.6mm in size. The touch panels provide a capability for the PDU to be used as a software configured control panel having great flexibility of application. The PDU is intended for use aboard diesel electric submarines and surface combatants. It will serve as an element of an integrated combat system, and will be used to provide auxiliary data and information to the combat system operators.

## Command Plot (CP)...

The Command Plot (CP) is the principle tactical and summary display for the command team as well as the primary workstation for the RAN navigation sensor operator(s). Submarines have traditionally employed basic manual plotting tables; however, with the introduction of modern sensor and weapon systems which require quick reaction, long-range and over-the-horizon targeting, the need for timely, precise navigational, geographic, and bottom topography data has become essential.

The CP fulfills this need. It combines the functions of the conventional plotting table and tactical displays with an automated horizontal large screen projection display and a color-graphic CRT monitor.

The large screen display provides the functions of the navigation/plotting table while the CRT color monitor provides a tactical analysis tote. The CP remains the focus of the navigation sensors, and the outputs of these are displayed electronically in conjunction with radar/video, geographic, and tactical symbology.

Equipment delivery is scheduled for the 4th quarter 1990. ■



# Employee Spotlight



**Jeff Nelson** took first place in a biathlon race recently held in Irwindale. Jeff, a Press Operator in the Printing and Reproduction Department, ran 2 miles, passed a baton to his biathlon partner on a bicycle who rode for 9 miles, and then handed the baton back to Jeff who ran another 2 miles.

Winning at running is not new to Jeff. Representing the U.S., he placed 4th in the World Jr. Cross Country Championship race held in Ireland in 1979. Jeff was attending Burbank High School at the time. While in high school, he broke the course record for every cross country race he ran in. Jeff still holds the National high school record for 2 miles with his time of 8 minutes, 36 seconds.

While attending the University of Oregon, Jeff was a member of the cross country and track teams, where he received many individual honors and helped establish team records that have yet to be beaten! Jeff joined Librascope in 1983. ■

## Rideshare News

### New Coordinator and New Van for Rideshare Program . . .



**Harriet Kaufman and Gary Darby**, Librascope Employee Transportation Coordinators in charge of the Company's Rideshare Program, inspect the new Dodge van which will be used for vanpoolers from the Palmdale area.

The 12 passenger 1990 Dodge V350 extended van was purchased with the assistance of a grant received from Cal Trans. Two other vans have been purchased for Simi Valley and Canyon Country vanpoolers.

Harriet Kaufman has been certified as the new Employee Transportation Coordinator, replacing Annabelle Luther who left the Company in April.

Harriet joined Librascope on June 4, as an Administrative Assistant in the Human Resources Dept. ■

---

## DRESS CODE RESTATED

It is that time of the year again – hot – and time again to remind employees that Librascope **does have a dress code.**

The following is **not accepted** business apparel at Librascope:

- Shorts ( including Bermuda Shorts)
- Tank Tops
- Halter Tops
- Spaghetti-Strap Dresses
- Mini-Skirts
- Backless, Strapless, See-Through Apparel
- Thongs
- T-Shirts ( with inappropriate words or pictures)

"It is our view that the Company has the right to require employees to maintain reasonable job-related standards of dress (in keeping with work areas) and grooming, in order to promote legitimate business needs," said Frank Yapp, Vice President, Human Resources.

In instances where an employee is inappropriately dressed, the employee may be sent home to change into more suitable clothing. ■

## Learn It – Use It – Save A Life!

When a person's heart and lungs stop functioning because of a heart attack, shock, drowning or other causes, it is possible to save that life by administering CPR, or cardiopulmonary resuscitation. Also, first aid given before paramedics arrive can sometimes save a life!

The Company will be holding a combination "CPR/First Aid Class" for all interested employees beginning in late July. The 8-hour class will be held after work into two hour sessions. Complete details will be announced shortly.

The Company wishes to acknowledge the quick response and CPR recently administered in an emergency situation by Richard Martin and Kurt Carter.



## Employee Publishes Four Papers Under Librascope Writing Incentive Program. .



**Ray Madachy**, Programming Research Specialist, recently published and presented his fourth paper in the Writing Incentive Program, titled, "**CASE and Hypertext Integration Issues**," at The Third Annual Teamworkers International User Group Conference in San Diego last March. CASE is an acronym for computer aided software engineering, a technology used on the AN/BSY-2 and CATFAE programs. The Company paid Madachy \$300 under the Writing Incentive Program for this paper.

In July, 1989, Ray published a CASE abstract in: Advance Working Papers of the Third International Workshop on CASE. The paper was presented at the Imperial College, London. Ray was one of the few invited to speak at the conference. A video is available of his presentation, call Ext. 1127.

In February 1989, Ray published and presented "**Digital Image Analysis of Cervical Biopsies**," and "**True Color Image Analysis for Determination of Bone Growth in Fluorochromic Biopsies**," at the Medical Imaging III conference in Newport Beach, hosted by the International Society for Optical Engineering. He received \$600 from Librascope for these papers.

Several months after Ray started working at Librascope, in November 1988, he travelled to New Orleans to present two papers and a poster presentation at the Annual International Conference of the IEEE Engineering in Medicine and Biology Society in New

# Safety Spells Sense

## HIGHWAY TIPS FOR SAFE/SANE TRIPS

**July and August** — those wonderful vacation months — are also the most deadly highway months. The reasons are obvious. Too many people try to cram too much joy in too great a distance with too little time. These conditions coupled with hot weather produce tired drivers and short tempers.

How do you win this yearly battle of the highway bulge? Follow these tips for safe/sane trips:

- ✓ **Have your car greased, lubed, checked, and double-checked before you leave** —  
Tires, plugs, battery, brakes, windshield wipers, etc., all deserve attention. Don't save money on car care.
- ✓ **Try to limit your driving** —  
Eight hours on the road or 400 miles at one time are enough for anybody.
- ✓ **Use seat belts** —  
Why be sorry when the odds prove you can be safer?
- ✓ **Drive defensively** —  
Yes, you still have to watch out for the other vacationer.
- ✓ **Obey all traffic laws** —  
They were made to serve and protect you and your family as well as other people.

---

## Important Safety Note

Employees are reminded to observe the speed limit in the Librascope parking lot at all times. . .

**10 Miles Per Hour in the Parking Lot**

**5 Miles Per Hour in the Parking Lot Behind the Main Gate**

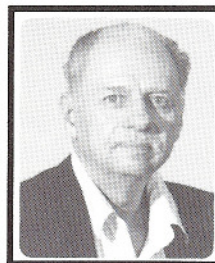
Orleans. There he was also presented an award for the best student paper for his research on mitotic cell analysis. Research for all of the medical imaging papers was performed at UCLA. Ray has authored or co-authored eight other papers in the area of medical imaging.

He joined Librascope in 1988, as a Programming Research Specialist in the Software Development Department for the BSY-2 program.

Ray holds a BSME degree from the University of Dayton, and a MS in Systems Science from the University of California at San Diego.

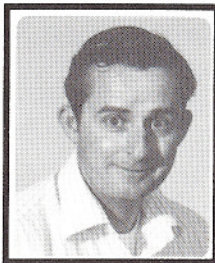
Madachy has completed all classes for a PHD in Biomedical Physics at UCLA. ■

## In Memoriam



**Clarence Kane**  
Sr. Staff  
Engineer

Joined  
Librascope  
8/31/64



**John Clark**  
Custodian

Joined  
Librascope  
9/27/83



# Computer Corner

by  
Carey Capaldi



There are over 100 Sun microsystem workstations in operation at Librascope which perform a majority of the Company's engineering design work, circuit design, software development, mechanical drafting & publications.

This article is the first in a series of articles written by Carey Capaldi, Supvr., Network Administration and Support, to explain how to C-Shell program and use some of the operating system, UNIX, utilities. Specific questions can be addressed to Capaldi at M/S 803.

The SUN/OS, UNIX, supports a user interface known as the "C" shell. This is a command interpreter which is the interface between the user and the rest of the SUN/OS. The "C" shell is also a programming language. This series of articles will discuss how to write "C" shell programs and how to use some of the UNIX utilities such as sort, grep, sed, and join.

The first article will discuss input and output redirection and connecting programs with pipes.

## Output Redirection –

You can easily instruct the "C" shell to use files for command input instead of the terminal. This is called redirection. Here is a sample –

```
% ls /usr/bin > comlist
```

In the above example the ls command would list the contents of the /usr/bin directory and store the result in a file by the name of "comlist." The > symbol redirects the output. Using output redirection with the cat command lets you create short text files without an editor. For example, the command –

```
% cat > memo
```

```
Budget meeting at 10:45  
< control-d >
```

tells the "C" shell to read from the keyboard (until you type a control-d – hold down the control key and press the d key) and store the result in a file called memo. You can also add lines to the end of an existing file.

The command –

```
% echo "Send report via UPS" >> memo
```

makes the "C" shell add the output of the echo command to the existing memo file.

## Input Redirection –

Input redirection can, for example, let us use the mail command to send ourselves the memo file as a reminder of the morning's schedule. The command –

```
% mail sara < memo
```

instructs the "C" shell to use file memo as input instead of the keyboard. The < symbol indicates input redirection and mails the contents of the file.

## Connecting programs with Pipes –

The pipe "|", instructs the "C" shell to connect the standard output of one program to the standard input of another program. The command –

```
% who | wc -l
```

will give you a count of users on the system. Another application –

```
% ls | lpr -Plw
```

this will pipe the contents of the current directory into the lw printer. Lets combine what we have learned –

```
% ls -l | sort > myfiles
```

This prints a sorted list of the files in your directory into a file by the name of myfiles. You can reference the manual pages or the suggested reading following this text for more information on the commands and the "C" shell.

Suggested reading:

### *Exploring the UNIX System*

Stephen Kochan and Patrick Wood  
Hayden books

### *The UNIX C Shell Field Guide*

Gail Anderson and Paul Anderson  
Prentice Hall

The next article, "How to Use Sort" will appear in the July issue of the Librazette. Questions on sort can be directed to Carey for inclusion in his upcoming article. ■

## Critical Openings Mean Cash to You!

Here's your chance to earn some extra cash! Employee Referral Bonuses of \$2,000 will be paid to Librascope employees who refer candidates that are hired to fill any of the following positions. If you know someone who may be interested, pick up an application in the Employment Department, or call Bob Shelton, X-1322.

### Systems Engineering:

- Computer Graphics Engineer
- Systems Development Engineer
- Systems Design Engineer
- Senior Engineer

### Software Design/Engineering:

- Systems Specialist
- Software Engr. & Lead System Software Engineer
- Software Engineer

See bulletin board for complete descriptions of job openings.



# Libravets thru July



**Kody Pappadato**  
30 Years  
Manager  
Pricing & Estimating



**June Pratte**  
25 Years  
Sr. Reproduction  
Equipment Operator  
Printing & Reproduction

## MORE LIBRAVETS. . .

### 15 Years:

Robert Riley, Joann Binns

### 10 Years:

Ohan Sahaghian, Jannette McGreevy, Maria Vega, John Flow, Naim Muthleb, James Mandernacht, Milton Schott

### 5 Years:

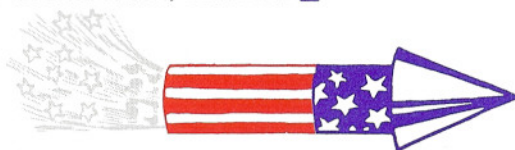
Jonathan Currie, Hannelore Powell, Wendy Collins, Alan Altman, Kathryn Loberg, Nancy Heath, George Steward. ■

## New Employees

**Ingrid Eiselstein**, Department Clerk; **Nancy Alexander**, Secretary; **JoAnn Spurill**, Sr. Payroll Clerk; **Richard Burrows**, Sr. Engineer; **Glenn Crider**, Technical Programmer; **John Sterns**, Programming System Specialist; **Mary Jacob**, PBX Operator; **Miles Christensen**, Programming System Specialist; **Thomas Marty**, Associate Accountant; **Simon Nguyen**, Technical Programmer; **William Sato**, Programming Research Specialist; **Steven Solomon**, Sr. Engineer; **Helen Wong**, Programming Research Specialist. ■

## Promotions

**Susan Muenzenberger** from Secretary to Quality Reports Coordinator; **Barbara Lehman** from Department Clerk to Secretary; **Dieter Bohning** from Buyer to Buyer-Outside Mfg.; **Melesio Velasquez** from Production Control Follow-Up to Mfg. Customer Service Coordinator, Trainee. ■



## Calendar thru September

For information and tickets for the events listed below, contact the Employee Services Office, X-1210.

Note: Evening seminars are scheduled to allow for employees' family attendance.

July

25

**Relocation/Post-Retirement Activities Seminar**

Conducted by Glendale College, 7 pm in the California Room

August

25

**Hollywood Bowl "Tchaikovsky Spectacular '90 With Fireworks"**

Includes dinner at the Bowl before the concert. \$25 per person

Sept.

7

**L.A. County Fair**

Sept. 7 - 30  
Discount Tickets  
\$5 Adults, \$3 Children

12

**Chicago**

Universal Amphitheatre  
Tickets \$24.50

21

**The Highwaymen —**

Universal Amphitheatre  
Willie Nelson, Waylon Jennings, Johnny Cash, Kris Kristofferson. \$32.50

21

**Retirees' Dinner at Librascope**

Invitations to be mailed August 24

22

**Family Fun Day at Universal Studios for Employees and Retirees**

Invitations to be mailed August 24

28

**Las Vegas Trip**

Sept. 28-30 "Great Escape Weekend" at the Las Vegas Hilton Hotel  
\$130 per person