Librascope Celebrates 50 Years

Librascope: Origins in Technology

Fifty years ago, in 1937, the Librascope Development Co. was first chartered with eight employees and one product. The product, a "Librascope" was the brainchild of a young aeronautical engineer named Lewis W. Imm. Imm developed the idea of a balance computer, one of the first computers with commercial applications.

This manual analog computer, the size of an attache case, was used to calculate weight distribution on commercial aircraft. It was called the "Librascope"; "Libra" for the zodiac balance sign and "scope" to denote indicator (thus balance indicator). The computer was quickly accepted by the major airlines and its name was adopted as the company name.

The Librascope reduced the time required to calculate a flight plan from 45 minutes with the pencil and chart method to less than two minutes of knob turning.

According to an early sales brochure, the Librascope was designed for use with the Douglas DC-2, DC-3, DS-T and the Lockheed 14 and 18, first-line commercial aircraft of the day.

A Librascope was used by the late Howard Hughes during his historic 91 hour, 8 minute, 10 second flight around the world in 1938. An up-to-the-minute log was kept of the weight/center-of-gravity condition to enable Hughes to "fly at all times at the altitude most favorable to the operation of the plane (a Lockheed Super Electra) with the load aboard at that particular time; the load naturally varying as the fuel was consumed. . ." — quote from *Aviation* magazine, 1938.

Librascope founder Lewis W. Imm, and his "Librascope".

An assignment from the U.S. Navy in early 1940 for a small ballistic computer brought Librascope into the field of fire control, where it has become the recognized leader.

National military needs absorbed the entire Librascope output during World War II. The Antiaircraft Barrage Computer Mk 7, perfected and mass-produced by Librascope, was a

Librascope Plans Open House to Celebrate 50 Years

To commemorate Librascope's 50th anniversary this year, an Open House is being planned for all employees and their families, to be held on Saturday, October 10.

"Many exciting things are being planned for this special 50th year celebration," said Dr. Walter Picker, President. "There will be exhibits and displays of Company products and programs, as well as entertainment, prizes, and refreshments."

Invitations will be mailed to all employees in September.

$16.2 Million in New Contracts

$6.2 Million Awarded For Militarized Bubble Memories

Librascope has been awarded a $6.2 million production contract by GTE to provide Militarized Mass Storage Bubble Memory Systems for the Peacekeeper Strategic Ballistic Missile Program.

This production contract is for Airborne Launch Control Center (ALCC) bubble memory systems for EC-135 Peacekeeper aircraft.

GTE's Strategic Systems Division in Westborough, Massachusetts is a prime contractor to the U. S. Air Force Ballistic Missile Office for the Peacekeeper command, control, and communications system in which the bubble memory systems will be used. The Air Force uses the militarized bubble memories in both ground and airborne applications.

The militarized bubble memory product has evolved from Librascope's experience in militarizing bubble memories for use in its field Army tactical command, and control and communications equipment. The Company has had long-term experience in producing militarized mass memories in various forms.

$5.9 Million Awarded for Canadian Submarine Weapon Control System Upgrade Program

Librascope has been awarded a $5.9 million contract to upgrade four AN/BYG–501 (SFCS Mk 1 Mod C) submarine weapon control systems to incorporate the capability to launch and control Torpedo Mk 48. The award was made following an extensive feasibility study conducted by Librascope for the Canadian Forces.

$4.1 Million Awarded for RD-433 Militarized Mass Memory Systems

A $4.1 million production contract has been received for Long Lead Material RD-433 Militarized Mass Memory Systems. The contract was awarded by the Space and Naval Warfare Systems (SPAWARS) agency as initial funding for production of RD-433's for use in the U. S. Navy TACINTEL and NAVMACS(V)5 shipboard satellite communications systems.

TACINTEL provides for receipt and transmission of tactical information via satellite on Fleet Flagships and selected aircraft carriers. NAVMACS(V)5 is a new enhanced communications system required by Major Combatants and Type Commanders.

Similar Librascope Mass Memory Subsystems are used in the Navy's TRIDENT Submarine communications and sonar systems, and on U. S. Coast Guard ships.

News Bulletin: *Librascope has been selected as a member of a multi-national team headed by Rockwell International Corporation to design and develop combat control displays and weapon control systems for the Royal Australian Navy's new fleet of six diesel-electric submarines.*

Librascope Celebrates 50 Years (Continued)

notable contribution to the war effort. This instrument computed when to fire antiaircraft guns at approaching aircraft.

During this period, Librascope developed prototype antisubmarine warfare fire control systems still in use by the U. S. Navy. The majority of the fire control systems for antisubmarine warfare now used by the U. S. Navy were developed and produced by Librascope.

In 1952, Librascope developed the first digital navigation and bombing computer. It marked Librascope's entry into the digital computer field.

In 1954, the Minnesota Electronics Corp. of St. Paul, Minn., specialists in magnetic logic elements for digital computers, became an important part of Librascope's computer capabilities. The build up in digital computer technology continued.

Through the 1950's and 1960's, Librascope moved the technology horizons of the computer industry upward with a number of important contributions, including the development of desk-sized computers for commercial and engineering use (1955), the creation of miniaturized airborne computers (1957), the development and implementation of complete digital fire control systems (1958), a pioneering effort in worldwide military command and control via computers (1963), advanced design of computer memories, and many innovations in communications and other peripheral equipment for computers.

This unique computer, a "Librascope," led to the founding of Librascope in 1937. About the size of an attache case, it computed weight distribution on cargo planes.

With a young, technically oriented management, the "climate for ingenuity" fostered at Librascope has nurtured many inventions. Among the significant firsts in computer technology registered by Librascope:

first computer for aircraft loading operations (the "Librascope")

first computer for antiaircraft weapon control aboard ship (the Mk 7)

first airborne digital navigation-and-bombing computer (the CP-209)

first desk-size, general-purpose, digital computer for scientific and engineering use (the LGP-30)

first digital weapon-control system for shipboard use in antisubmarine warfare (the Mk 111)

More Librascope **firsts** and history in the next issue of the Librazette.

The Story of Librascope's Trademark and Name

Our company name is familiar to us all. Though our company trademark is not as familiar since it has not been used for many years, do you know how we acquired them both?

The company name Librascope came from "Libra" meaning "balance" and "scope" meaning indicator, or "a means of viewing". It was the name given to the first aircraft balance computer developed by the company's founder Lewis Imm, and produced by the company in its early years.

"Libra" is the seventh sign of the zodiac. Ancient mythology established it as the "scales", or "balance". The title, Libra, we owe to the Romans. The Greeks had a tradition that the balance, "Libra", was placed in the sky to perpetuate the memory of Mochus, the inventor of the system of weight and measures. This was the origin of mathematics and computation, as there was no need for mathematics before man could measure and/or weigh.

The ancients attached great importance to the scale or balance being in equilibrium. They recognized the fact that in order to achieve progress as a group they needed harmony and mutual respect for each other. They regarded the symbol of the balance as showing that justice and equality must be in equilibrium.

The Lewis Imm Story is Librascope History

Librascope was founded by Lewis W. Imm in 1937, when he developed the first "Librascope," a balance computer built to determine the center of balance for airplanes, namely the Douglas DC-3 and the Lockheed "14," the mainstays of commercial air travel at the time. Imm had seen the difficulties encountered by the need for computing the center of balance in loading aircraft while working as an engineer for the Bureau of Air Commerce, and in 1937, he left the Bureau to develop the first "Librascope."

During the early years, Mr. Imm worked for a period of time as an engineer for

Lockheed days while he was working for Librascope at night. This was not necessarily a matter of choice, but funds were scarce and payrolls had to be met, even though the payroll consisted of less than ten people.

From 1937 to 1941, the Company made quite a few moves from shops in Burbank on San Fernando Rd., to Gage St., to Tujunga Ave., and finally in 1941, to a plant on Santa Anita St. where the Company stayed until moving to its present site in 1949.

In 1941, Mr. Imm began to encounter difficulties which were common to many small progressive companies at that time. The defense program was swinging into high gear and orders were available for much needed defense supplies. Many of these orders called for much greater capacity and financial backing than most small companies had. Faced with

Lewis Imm shown with the Attack Console Mk 38, part of the Fire Control Group Mk 111, built in the late 50's.

this problem, Mr. Imm decided that the future of the Company and the needs of the Country called for action.

Accordingly, he decided to sell Librascope to the General Precision Equipment Corporation in order to obtain substantial financial backing. On November 12, 1941, Librascope became a subsidiary of the GPE Corporation. Under GPE ownership, Mr. Herbert Griffin became president of Librascope and Mr. Imm became an engineering consultant for the firm.

In the early war years, production at Librascope was predominantly on the Mark 7 barrage computer, also known as the LC 6. The Mark 7 computer, like the balance computer, was a manually operated linkage type. During the years when the Mark 7 was in production, Mr. Imm was occupied much of the time with the development of a new computer, the Mark 4, for antisubmarine use. From 1942 to 1944, he spent many days on shipboard determining requirements for the computer.

In March of 1947, Mr. Griffin was succeeded by Mr. George Friedl, as president of Librascope. At the same time, Mr. Imm became Chief Development Engineer where he continued with research and development work for the Company, which by now was considerably more advanced and complex than in the days of the balance computer.

In December of 1949, Mr. Imm returned to the presidency of Librascope, and under his direction, Librascope began to grow and prosper and gained a respected place among those companies on which the U. S. Navy still depends.

In 1949, Librascope moved from Santa Anita St. in Burbank, to its present site in Glendale, shown in the photo above. Under the ownership of General Precision Equipment Corporation, the Company employed approximately 200 employees. Note the abandoned Grand Central Airport landing strip in the background, actually used by members of the Librascope flying club.

SFCS Mk 1 Mod 15I Training Software Support System Delivered To India
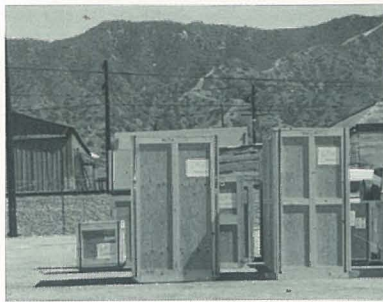
Delivery of the Submarine Fire Control System Mk 1 Mod 15I Training/Software Support System to the Indian Navy was completed in March. The delivery culminated a two-year $6.14 million development and production contract with the Indian Navy for a training/software support system.

The training/software support system provides for shipboard simulated real-time operational/maintenance scenarios and software maintenance support.

The system is scheduled for installation in Bombay, India, in a newly designated facility for the submarine program. The shore-based system will be the training center for Indian Navy tactical and weapon control personnel assigned to India's new 1500 ton, German-built 209-class submarines which have Librascope's SFCS Mk 1 Mod 15I installed onboard.

The Company received the contract from the Indian Navy in 1982 for four SFCS Mk 1 Mod 15I systems. All four systems have been delivered to India. Later contracts are anticipated for additional systems, as India adds more submarines to its fleet.

Dress Code Update

Employees are reminded that Librascope does have a dress code. "It is our view that the Company has the right to require employees to maintain reasonable job-related standards of dress and grooming in order to promote legitimate business needs," said Frank Yapp, Vice President, Human Resources.

"In a Company like Librascope, with visitors, customers, and potential customers coming and going on an almost daily basis, we must maintain a stricter dress code than for a company whose employees may not have daily exposure with the public.

"With this 'public contact' in mind, it is important that we project the appropriate image to all our visitors at all times. Also, inappropriate dress or grooming may compromise relations with other employees, or may even involve questions of safety or health."

Clothing that is not acceptable business attire at Librascope includes: low necklines, backless, strapless, braless, see-through apparel, shorts, sweat pants, tank tops, mini-skirts, thongs, crop tops, floor-length dresses, sleeveless t-shirts, shirts or blouses which expose the chest or bosom, t-shirts with inappropriate artwork or logos, and leotard pants, short or long.

"10% Club Members"...

Pictured above are the first members in a new incentive program for Production department employees. Called the "10% Club", employees become members if their total performance averages 10% or more below the total history hours of all jobs worked for a one-month period. Members receive a "10% Club" porcelain coffee cup.

The first "10% Club" members include, from left, Khanh Phung, Final Assembly; Bill Au, Functional Test; Laurie Goetschel, Circuit Board Assembly; Mann Ngo, Circuit Board Assembly; Greg Gonzales, Model Shop; Frank Olmeda, Functional Test; Tom Cavanaugh, Model Shop; Paul Orton, Model Shop; Fred Wenzel, Machining; Kim Suhr, Machining; Lance Newton, Machining; with Jim Gilliam, Superintendent, Production. Other 'members' not pictured include, Linda Acosta, Final Assembly; Diane Murray, Final Assembly; Israel Rubinstein, Machining; and Richard Skey, Model Shop.

W-4 'Good Faith' Filings to End June 1

The Internal Revenue Service warned taxpayers that they have until June 1 to file a new W-4 form and still escape penalties for underestimating withholding on next year's tax bill.

While the new federal tax code does not require people to file a form W-4 until October 1, meeting that deadline is not enough to escape penalties if income withholding comes up short.

The IRS requires that taxpayers prepay at least 90 percent of their tax bill or be assessed penalties. But because tax brackets are changing under the new tax bill, taxpayers must revise their W-4 forms to correctly estimate the amount of income withheld to cover the 1987 tax bill.

Because of the confusion over the new form, the IRS announced earlier this year it would waive the penalty for taxpayers who have made a "good faith" effort at getting their withholding right.

It defined a "good faith" effort as completing and filing a new form W-4 by June 1, thus declaring a grace period.

The new W-4 forms are available in the Payroll and Personnel offices in Building 3, and at the Reception desks in Building 8. The W-4 form must be completely filled out, signed, and returned to Payroll, M/S 308.

Employees Attend Computer Class

A "class reunion" was recently held for 45 Librascope employees to receive certificates for completing an 18-week State funded computer training program at Glendale Community College.

The after-work, hands-on computer training class was free to Librascope employees, through the Librascope Employment and Training Office. The program is funded by the State of California Employment Training Panel.

The classes feature training in the most popular business software packages, with emphasis on LOTUS 123 and WORDPERFECT. The next class is scheduled to start on July 13. Registration information can be obtained by calling: the Librascope Employment and Training Office, Raul Navarro, X-2309.

Librascope employees who completed the computer class include: Shelley Aldrich, Jill Amidon, Carol Aguilar, Glenda Bacon, Margie Boudinot, Kaye Campbell, Mary Helen Cummings, Margaret Crawford, Annetta Di Chiara, Barbara Fimple, Virginia Garcia, Jacqueline Goodwin, Laura Green, Judith Ann Griffiths, Sheila Gustafson, Angela Jackson, Jim Kennington, Niles Kershner, Diane Kovinic, Regina McGinley, Raul Navarro, Patricia Lehman, Jose Llubien, Gaylene Lowinger, Linda Maas, Mary Anne Maloney, Linda Martins, Tracey Matteson, Robert Megee, Carmela Monasterio, Vicente Nuguid, Kathleen O'Donnell, Francis Optiz, Jeannie Padgett, Barbara Parker, Vera Petrovich, Anna Ponka, Hanneloer Powell, Adele Ramirez, Lila Mae Reynolds, Lorraine Rodowsky, Sandra Rodriguez, Norma Rydgig, Jan Szabo, and Janice Tempesta.

Englehardt Named Director, Marketing, Eastern Region

Dan Englehardt has been appointed to the position of Director, Eastern Region Marketing. He replaces William Wendell who retired from Librascope earlier this year. The Librascope Eastern Region Marketing office is located in Arlington, Virginia.

Since joining Librascope in 1964, Englehardt has held a series of increasing responsible technical, management, and new business development positions. He was formerly Manager, Naval Systems Marketing, Eastern Region.

Englehardt graduated from the University of Colorado with degrees in Mechanical Engineering and Business Management. He has held positions of Program Chairman and Treasurer of the American Defense Preparedness Association, Undersea Warfare Systems Division, and is currently a member of the National Security Industrial Association and Navy League of the United States.

Libravets

Ken Burton
30 Years
Contracts

Tony Butyrin
30 Years
Engineering
Administration

Robert Megee
30 Years
Finance

NOT PICTURED: 30 Years – Helen Perez

MORE LIBRAVETS

20 Years – Al Peppi, Al Wilson, Melba Puryear, Patsy Luff, Ronald Norton, Robert Alvarado

15 Years – William Blakely, Quentin Anderson, James Yeatrakas, Thomas Cuda

10 Years – Barbara Parker, Florence Nuccio, Fred White Eagle, Jose Feliciano

retirements

John Filkins, 20 years, left, Engineering Administration, is congratulated by Jerry Deitz, Vice President, Engineering.

Vivian Maldonado, 20 years, Circuit Board Assembly, with supervisor, Bob Duggins.

Mary Jane Saal, 10 years, seated, Data Control & Training, with well wishers.

Cora Cox, 28 years, Sub-Assembly/Wiring

promotions

Velma McCarty, from Accounts Billing Clerk to Associate Accountant; **Floyd Smith, Jr.,** from Assistant Technical Programmer, to Technical Programmer; **Rosemary Smith,** from Secretary to Administrative Secretary; **Mary Jacob,** from Mail and Records Clerk to Department Clerk; **David Jones,** from Installation Engineer to Engineer Project Manager; **Mary Lee,** from Accounts Payable Clerk to Sr. Accounts Payable Clerk; **Michael Tucker,** from Associate Electronic Engineer to Engineer; **Victor Vennari,** from Property Coordinator Trainee to Property Coordinator; **Rick Caputo,** from Instrument Inspector to QC Engineer; **Ralph Anderson,** from Production Project Coordinator to Mgr., Production Project; **Juan Batista,** from Sr. Mfg. Engineer to Supr., Mfg. Engineering; **David Biestek,** from Combat Systems Analyst to Sr. Combat Systems Analyst; **Greg Birkel,** from Sr. Technical Illustrator to Industrial Artist; **William Chandler,** from Tool Engineer to Sr. Tool Engineer; **John Coletti,** from Secretary to Sr. Word Processor Operator; **Timothy Cooke,** from Installation Engineer to Sr. Installation Engineer; **Sylvia Cota,** from Circuit Board Assembler "C" to Circuit Board Assembler "D"; **John Foehne,** from Field Service Engineer to Sr. Field Service Engineer; **Shirl Gilliam,** from Assistant Programmer Trainee to Assistant Programmer; **Judith Griffiths,** from Department Clerk to Plant Engineering Coordinator; **Donna Grimes,** from Material Order Processor to Inventory Data Analyst; **John Gustafson,** from Mgr., Production Engineering to Mgr., Technical Planning; **Nancy Heath,** from Secretary to Administrative Secretary; **Cynthia Hogan,** from Support Analyst to Support Engineer; **Casimir Kempski,** from Combat Systems Analyst to Sr. Combat Systems Analyst; **Kevin Kofler,** from Installation Engineer to Sr. Installation Engineer; **Karen Kramer,** from Sr. Technical Writer to Engineering Writer; **David Kusuda,** from Engineer to Sr. Engineer; **Gary Lee,** from Mfg. Engineer to Sr. Mfg. Engineer; **Barbara Lind,** from Installation Technician to Installation Engineer; **Robert McFarlin,** from Systems Analyst to Sr. Mfg. Systems Analyst; **Jeffrey Nelson,** from Sr. Reproduction Equipment Operator to Press Operator; **Vera Petrovich,** from Department Clerk to Secretary; **Dean Ponzi,** from Mfg. Engineer to Sr. Mfg. Engineer; **Ted Pool,** from Sr. Electronic Technician to Electronic Engineer Associate; **Gayle Rosander,** from Engineer to Sr. Engineer; **Robert Sands,** from Safety Environmental Engineer to Mgr. Facilities; **Joseph Schlegel,** from Mgr., Customer Training to Mgr. Documentation and Training; **Gail Schneider,** from Procurement Follow-Up Trainee to Procurement Follow-Up; **Adriana Simplicio,** from Sr. Engineer to Staff Engineer; **Don Tubbs,** from Project Mgr. to Staff Engineer; **Edward Wisniewski,** from Design Drafter to Designer; **Tony Cappellini,** from Electronic Technician to Sr. Electronic Technician; **Chris Crouch,** from Material Order Processor to Estimator Trainee; **Lawrence Finkelman,** from Mgr., Engineering Planning & Administrative to Program Mgr.; **Gregory Firth,** from Electronic Engineering Associate to Sr. Electronic Engineering Associate; **Laura Green,** from Department Clerk to Secretary; **Peter Houser,** from Supervisor, Field Engineering to Supervisor, Systems Design; **Theodore Lorenzen,** from Engineer to Sr. Engineer; **Sal Molina,** from Electrician to Supervisor, Plant Engineering; **Dan Rangel,** from Electronic Engineering Associate to Sr. Electronic Engineering Associate; **Mark Seamands,** from Electronic Engineering Associate to Sr. Electronic Engineering Associate; **Douglas Rowitch,** from Engineer to Sr. Engineer; **Richard Rozewicz,** from Sr. Methods Analyst to Mfg. Engineer; **Bernadette Stahle,** from Executive Secretary to Administrative Asst.; **Domenic Vennari,** from Engineer to Sr. Engineer; **Jerry Harris,** from Engineering Aide to Electronic Technician; **Edward Millner,** from Program System Specialist to Program Research Specialist; and **Bernard Richman,** from Mathematician to Sr. Mathematician.

LIBRASCOPE BASKETBALL TEAM — Winners of the Glendale "B" Division Championship, from left, standing - Joe Williams, Joel Rooks, Paul Denzer, Carl Johnson, Steve Wallace, and on left, kneeling, Bill Dunaway and John Williams. The team won a total of six games, qualifying them for the championship playoffs, where they emerged victorious after defeating West Coast Promotions, 56-32.