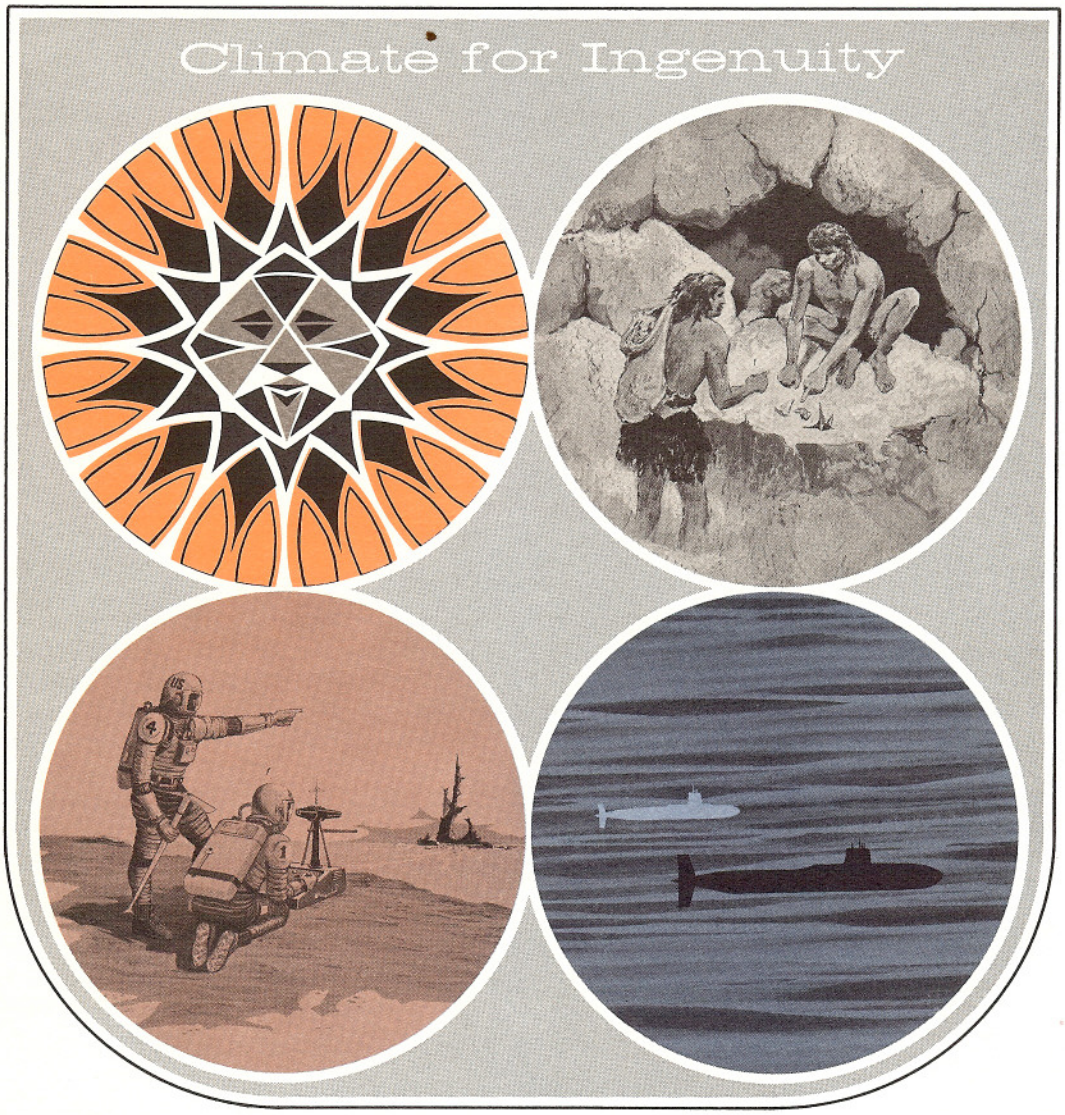
GENERAL PRECISION, INC., LIBRASCOPE GROUP



Development of the modern computer and related technologies can be said to have begun when ancient man first learned to count. Artist sketch depicts how this first experience in computing may have transpired.

THE HERITAGE

The Librascope Group of General Precision, Inc., came into existence in 1937, at the beginning of the modern and most accelerated cycle of the continuing revolution of computer technology and science. Librascope is a part of this story. The events that stimulated the outcropping of ideas and products in the past 30 years trace the development of man's mathematical genius from the primeval days of cave life. As a prelude to the story of how Librascope grew and now thrives in a "climate for ingenuity," a brief computer history follows:

Ancient man learned to count with his fingers, and then to supplement these with pebbles. As early as 3000 B.C., these pebbles were strung on wire to form the abacus, a calculator still used today.

In 1614 A.D., John Napier's concept of logarithms stimulated invention of mechanical devices that produced a mechanical analogy, or *analog*, of the problem being solved – and thus were analog computers.

Pascal, in 1642, invented the adding machine. It added digits by the measured rotation of *digits*, or toothed counting wheels, and was, in essence, embryonic digital computing.

The prototype of the modern computer was built in 1835 by Charles Babbage in England. It contained a memory, a program of instructions, and an automatic control system. But it was never completely built.

It remained for the science of electronics to bring the dream of a fully automatic computer to full fruition. In 1937, an M.I.T. student showed the relationship between the "yes-no" of symbolic logic, and "on-off" of electronic switching circuits. By 1946, theory became reality in the first electronic digital computer, the University of Pennsylvania's ENIAC. Analog computing also developed rapidly during this period.

From 1946 to the present, the development and applications of both digital and analog computers advanced beyond the wildest imagination of the early computer pioneers. By 1965, there were nearly 23,000 digital computers alone in use. Computers have benefitted nearly every facet of modern life – business, industry, government, science, education, warfare, space exploration, medicine, and defense. And, the promise for the future is even greater and varied application of computers as both a physical and mental tool.

Librascope will continue to add its share to this revolution, by providing the "climate for ingenuity" needed to advance the state of the art.

LIBRASCOPE: ORIGINS IN TECHNOLOGY

Librascope Group of General Precision, Inc., was established and has thrived as a part of the modern cycle of computer development.

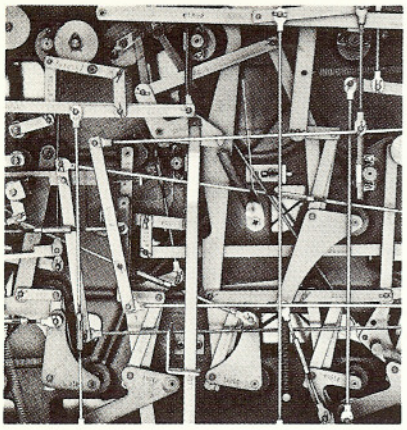
This unique computer at right, about the size of an attache case, led to the founding of Librascope in 1937. Called a "Librascope," it computed weight distribution on cargo planes. At left is Librascope's headquarters building.

Librascope's history began with the invention and production of a balance computer in the Spring of 1937 by Librascope's founder, Lewis W. Imm. This linkage-type weight-and-balance computer, called a "Librascope," was used in aircraft loading operations. It reduced time-consuming aircraft loading calculations to simple knob-turning and dial-reading. The success of the "Librascope" was followed closely by the development of a power computer and a flight computer for the growing aircraft industry. These computers, based on the principles of Imm's first linkage computer, were also among the first computers ever produced.

In 1939, the company received a corporate charter as Librascope, Inc. 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.

In 1941, Librascope, Inc. broadened its resources by becoming a subsidiary of General Precision Equipment Corp.

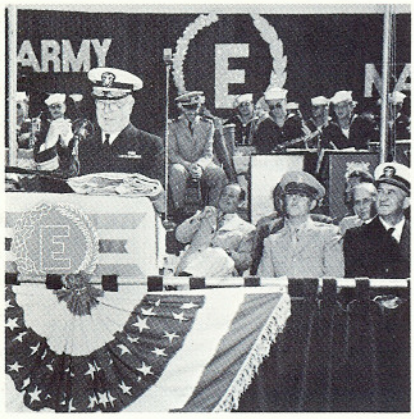
National military needs absorbed the entire Librascope output during World War II. Antiaircraft Barrage Computer Mk 7, perfected and mass-produced by Librascope, was a notable contribution to the war effort. This instrument computed when to



TOP: One of the first analog computers, Librascope's Mk 7 Barrage Computer, was a network of rods, gears, and wires. This pioneer computer solved shipboard antiaircraft-gun aiming problems during World War II. Modern computers employ electronic circuits and memories.

MIDDLE: Outstanding work in the development of shipboard fire-control computers and other achievements earned Librascope the Army-Navy E during World War II.

BOTTOM: During training exercise, a depth charge fired from a Navy vessel explodes under water. Librascope equipment controls firing of such weapons.



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fire antiaircraft guns at approaching aircraft. During this same 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. For its outstanding military support activities, the company received the Army-Navy E in 1943, with four stars added before the war's end.

In 1948, the Brandon Scientific Development Corp. of New York joined Librascope. The personnel and equipment thus absorbed strengthened Librascope's ability to design and develop optical and computing devices.

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.

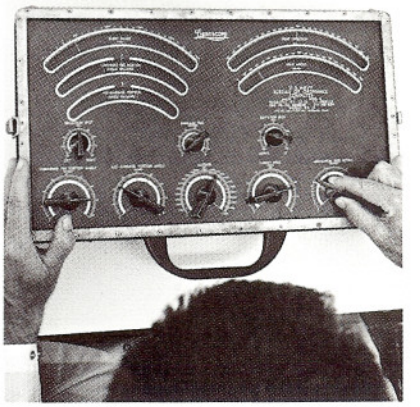
Through the 1950's and 1960's, Librascope moved the technological horizons of the computer industry upward with a number of important contributions, including the development of desk-sized computers for commercial and engineering use (1955), the creation of miniaturized airborne computers (1957), the 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.

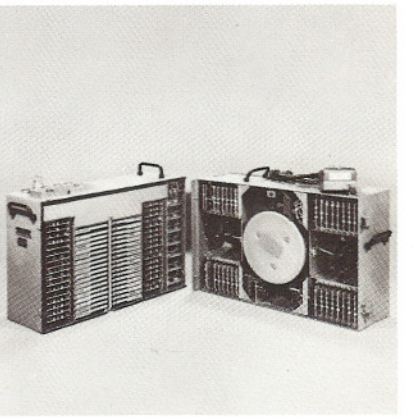
Among the keys to Librascope's growth and success are the creativeness and abilities of a young, technically oriented management. From meetings such as the one pictured here have come ideas and plans for many of Librascope's technical firsts.

TOP: In WW II, Librascope developed the first computer (the Mk 7) that automatically computed fire-control functions for antiaircraft weapons aboard ship.

BOTTOM: Librascope's CP-209 Bomb-Navigation Computer was designed in 1952 and became the first digital computer for airborne bombing and navigation functions.

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 are:





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)

first digital weapon-control system for submarine use in antisubmarine warfare (the Mk 113)

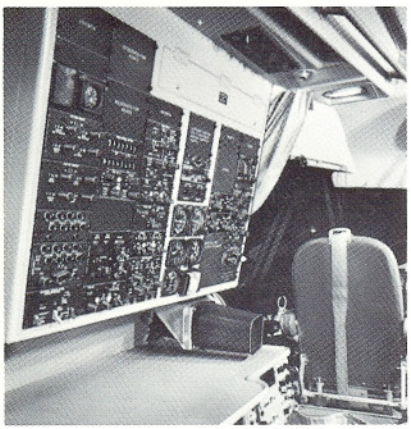
first digital computing and data-processing system specifically designed for air-traffic control (the L-3020)

first miniature airborne digital navigation-and-guidance computer for use in missiles (the L-600)

Among many firsts achieved by Librascope is the LGP-30, the first desk-sized, general-purpose digital computer for scientific and engineering use.

TOP: The U.S. Air Force's giant C-141 jet cargo plane uses a Librascope-designed digital navigation computer.

BOTTOM: The principal elements of the AN/ASN-24 navigation computer designed by Librascope are mounted at the navigator's station in C-141 aircraft.



first digital computer installed for navigation on operational USAF cargo planes (the AN/ASN-24)

first portable, rugged fieldable computer for navigation of surface ships or tactical support of Army units (the L-2010)

first mass memories with search-by-content capabilities (the LIBRAFILE 4800)

first application of digital computer to aerial camera control

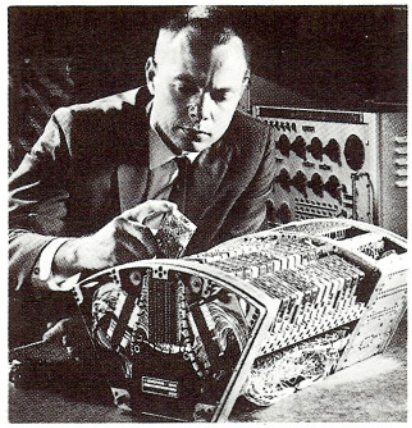
first digital computer system designed specifically for worldwide military command and control (the L-3055)

first miniaturized integrator (the L-10-1)

first display screen with long image persistence (LIBRACOAT)

TOP: The pie-shaped lines of this first-of-its-kind computer reveal its function to guide a missile. The computer, called the L-600, fits under a missile's skin.

BOTTOM: The L-3055 data-processing system, installed in the Air Force Command Post at the Pentagon, is the first of its type designed specifically for command and control.



ANTISUBMARINE WARFARE AND FIRE-CONTROL SYSTEMS

Official U.S. Navy Photograph

TOP: Librascope is a prime supplier of fire-control equipment for Navy vessels, such as the seven destroyers shown at San Diego Naval Station.

MIDDLE: Fire-control technician operates the Mk 113 fire-control system produced for the Navy's submarine-launched SUBROC weapon system.

BOTTOM: A deadly SUBROC antisubmarine missile bursts from water during tests in Pacific. SUBROC re-enters the water and seeks out target for the kill.

Defense against submarines is a prime mission of the U. S. Navy. Beginning in World War II, Librascope has been the largest supplier of computers for use in solving the Navy's antisubmarine warfare (ASW) problems. Today, the majority of destroyers, submarines, and other vessels employing ASW weapons are equipped with Librascope computer-based fire-control systems.

Here's how a computerized fire-control system works: When a submarine is detected by sonar or other means, automatic input devices feed data on the submarine's range, speed and bearing, plus data on the motion of its own ship, into the fire control computer. The computer instantaneously computes the proper trajectory and moment of fire for an ASW weapon.

As submarines develop capabilities of operating at ever-greater depths and higher underwater speeds, the problem of detecting and destroying them becomes correspondingly more difficult. Librascope is helping to meet this challenge by extending its design and production experience to the development of "integrated combat systems."

The integrated combat system is composed of three elements: detectors, the fire-control computer, and the antisubmarine weapon itself. Through use of interface devices which automatically relate and interconnect these elements, it reduces the possibility of error and assists in decision-making. The detection-to-firing sequence, as a result, is carried out at a speed and accuracy otherwise unattainable. Furthermore, these integrated combat systems can be related through interface components to a command-and-control system regulating an entire fleet operation.

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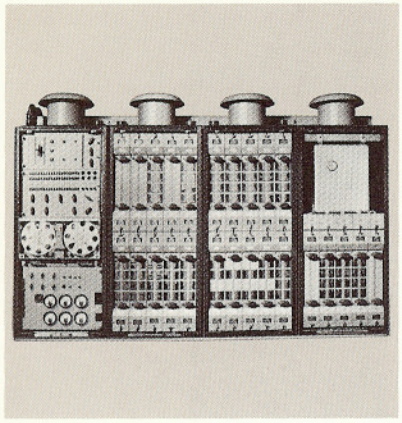
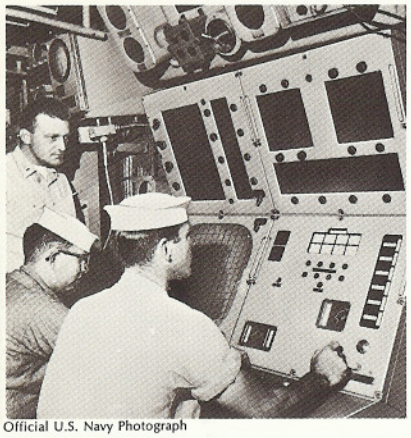


TOP: Librascope's Mk 130 digital computer is a key element of the SUBROC weapon system's Mk 113 fire-control system.

MIDDLE: Navy personnel operate Mk 111 fire-control system produced by Librascope for the Navy's destroyer-launched ASROC antisubmarine missile.

BOTTOM: ASROC antisubmarine missile leaves a trail of fire as it is launched from a destroyer deck.



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LIBRASCOPE'S ANTISUBMARINE WARFARE COMPUTER ACHIEVEMENTS . . . A SUMMARY

For the SUBROC weapon system, Underwater Fire Control System Mk 113: This fire-control system employs the first electronic digital computer (the Librascope-built Mk 130) ever used aboard submarines as part of a complete ASW weapon control system. The Mk 113 tracks and zeros in on several undersea targets at one time, and directs the firings of the SUBROC missiles. SUBROC is launched from a submarine torpedo tube, breaks through the surface of the water, becomes airborne, re-enters the water at supersonic speeds, and seeks out its target for the kill.

For the ASROC weapon system, Underwater Fire Control Group Mk 111: This fire-control system incorporates the first electronic digital computer developed specifically for ASW fire control aboard surface vessels. The Mk 111 finds the solution to attack problems and directs the firing of the deadly ASROC at submerged submarines.

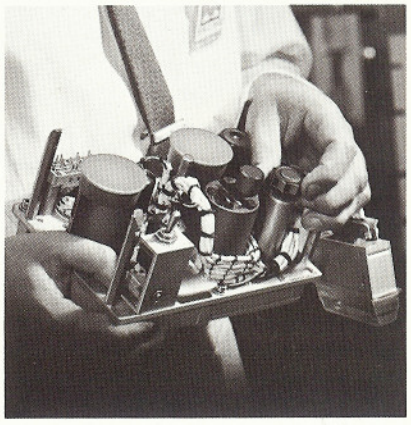
For FRAM vessels, Underwater Fire Control System Mk 114: This fire-control system computes the ASW attack problem and directs the firing of eight different ASW weapons, ranging from hedgehogs and depth bombs to wire-guide torpedos and ASROC missiles. Mk 114 systems are installed aboard destroyers and other surface ships being modernized in the Navy's Fleet Rehabilitation and Modernization (FRAM) program.

For Polaris, analog computing modules for Mk 80 and Mk 84 fire-control systems installed aboard Polaris-carrying nuclear submarines.

For conventional (non-nuclear) ASW systems, the Mk 105 Underwater Fire Control System, installed during the 1950 s aboard more than 450 destroyer-type ships. The Mk 105, still in operation, controls torpedo, hedgehog, depth charge, and other ASW weapon attacks.

MIDDLE: Librascope produces analog computing modules for the Mk 84, and Mk 80 fire-control systems, which fire the Polaris missile from underwater submarines.

BOTTOM: A Polaris missile, ejected from a submarine, ignites after surfacing and heads for its mission.



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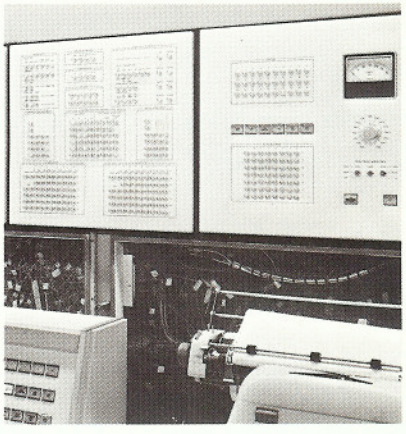
COMMAND-AND-CONTROL AND DIGITAL-INFORMATION SYSTEMS

TOP: Headquarters of U.S. military operations is the famous Pentagon building in Washington, D.C. Librascope is helping to apply computers to command-and-control functions here.

MIDDLE: Model of AN/FYQ-11 Data Processor Set produced by Librascope for USAF's 473L command-and-control system is viewed at Glendale manufacturing site.

BOTTOM: Close-up of control panel of AN/FYQ-11 Data Processor Set during assembly reveals maze of wiring.



In the command and control of a world-wide defense establishment, U. S. military organizations must process and act upon a vast and growing amount of information on weapons, supplies, manpower, and contingencies. The modern computer is helping to solve the problems of gathering, processing, and displaying this information to decision makers, whether they are located in headquarters facilities or in the field of action. Librascope is pioneering the application of digital computers and related equipment to these command-and-control and large-scale information-processing operations.

Librascope's command-and-control products include:

L-3055 Data Processing System: This is a large-scale data-processing system for military command-and-control applications. The L-3055 is built around high-speed computers, a multi-disc memory system for massive storage of data, and buffer computers that process messages at high speed.

AN/FYQ-11 Data Processor Set, a configuration of the L-3055 and the major subsystem of the U.S. Air Force's 473L command-and-control system at the Air Force Command Post in the Pentagon. The AN/FYQ-11 is the first large-scale computer system designed to perform command-and-control functions in real time.

Mass Memories: A series of mass-memory disc files for use with large-scale data-processing equipment or as separate memories ruggedized for field use. The mass memories designated LIBRAFILE 4800 mass memories, store billions of bits of information on the largest disc (48 inches in diameter) ever built. The files feature search-by-record content—a time saving feature.

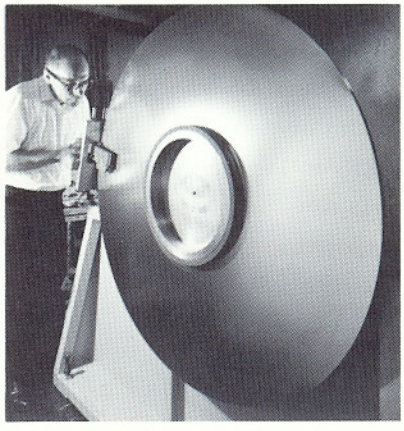
Communications Computers: A series of medium-scale computers capable of processing messages at high speeds. These are essentially buffer-type computers, as contrasted to mass-memory types such as the AN/FYQ-11. Typical applications for communications computers are in military sub-depots or field outposts, where a large number of messages must be received, processed as to nature and priority of content, and transmitted to other computer installations at a major command-and-control center.

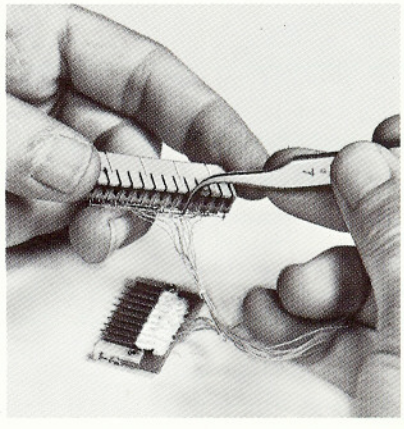
TOP: One of the fastest and largest computer mass memories developed is Librascope's LIBRAFILE 4800 mass memory. This memory, built around discs 48 inches in diameter, can store 800 million bits of data.

MIDDLE: An aluminum disc 48 inches in diameter is the memory element of Librascope's LIBRAFILE 4800 mass memories.

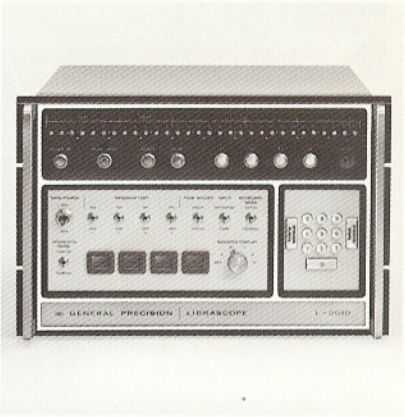
BOTTOM: Technician wires one of 13 magnetic heads used in head bar of LIBRAFILE 4800 mass memory. These heads deposit and withdraw data from memory.

Now installed at the Air Force Headquarters Command Post in the Pentagon is Librascope's AN/FYQ-11 Data Processor Set. The equipment is key part of the 473L command-and-control system.





FIELDABLE COMPUTERS AND MEMORIES



TOP: The compact L-2010 computer is available in a rack-mounted configuration for rugged applications aboard ship, on the battlefield, or in other difficult field environments.

MIDDLE: The versatile L-2010 computer (lower left) can perform functions with many peripheral devices, including a tape typewriter (lower right) and a plotter (rear).

BOTTOM: Navigating small Navy ships such as minesweepers and survey vessels is one of the many applications for the L-2010 computer.

One of the major requirements and trends in the computer field is miniaturization. Computers that once occupied entire rooms have now been compressed into desk-sized configurations. Ten years ago, a portable computer with sufficient capacity to solve difficult problems in the battlefield was considered unattainable. But, Librascope has now developed and is marketing just such a miniaturized computer, the L-2010. Occupying only two cubic feet, this computer is designed to operate in the most severe conditions aboard ship, on the battlefield, or in other difficult environments.

Applications for this computer range from shipboard navigation and data reduction aboard oceanographic vessels to ballistic computations for battlefield artillery weapons.

As fieldable computers have established their value with applications of this caliber, military men have found new applications of computing and data-storage equipment in tactical situations. Typically, the need has been for an expanded "data base" — electronic memory capacity to expand on-the-spot computing capability. Librascope has fulfilled these requirements with a line of mobile and airborne portable disc files capable of operating in conjunction with computers in virtually any military environment.

Official U.S. Navy Photograph

COMPUTER COMPONENTS AND PERIPHERAL PRODUCTS

Librascope produces a line of components and peripheral products for use in its own computers and data-processing systems and for marketing to other computer manufacturers, to the government, and to industry. These products include:

Magnetic-Disc Memory Systems: Librascope produces one of the nation's most complete lines of magnetic-disc memory systems for digital computers, communication systems, and control systems. Available in a variety of configurations with up to 30 million bits of memory storage capacity, the memory system finds broad use as computer auxiliary memories, as bulk storage devices, and in other commercial and military applications.

Woven Thin-Film Memory Planes: Librascope manufactures and markets a line of woven thin-film memory planes for use in high-speed computer memories. The unique memory planes, a development of Toko, Inc., Tokyo, Japan, feature high speed (a cycle time of less than 100 nanoseconds), low power consumption, low cost, and small size. The memory planes are woven like cloth and can be machine-produced in mass quantities at a low cost.

Encoders: Librascope manufactures a line of more than 250 shaft-position-to-digital encoders, the most complete line in existence. These include both brush-type and noncontact encoders. The encoders are used to convert analog information into digital form in computers that perform tasks ranging from aircraft navigation and shipboard fire-control to spacecraft guidance and industrial process control.

Integrators: Librascope is the nation's leading producer of ball-and-disc integrators. More than 40,000 integrators have been produced for use as mechanical computing elements in computing and control systems.

Differentials: Librascope produces a line of mechanical differentials for use in servo systems and control devices or as pure computing elements.

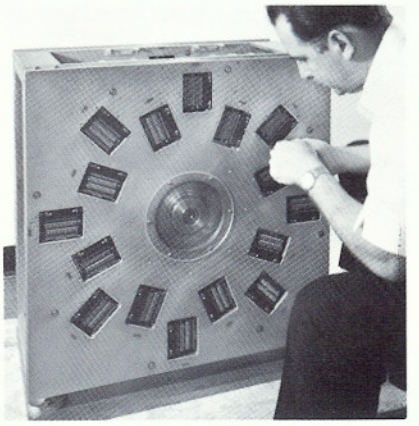
TOP: The complete line of Series L-400 Magnetic-Disc Memory Systems manufactured by Librascope includes the L-424, shown undergoing checkout.

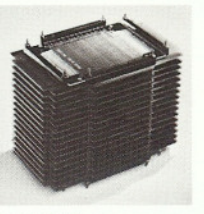
MIDDLE LEFT: L-321 disc memory is a low-cost, high-capacity computer memory.

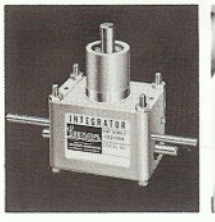
MIDDLE RIGHT: Woven thin-film memories are capable of operating in billionths of a second.

BOTTOM LEFT: Librascope is largest producer of integrators, used as mechanical computing device.

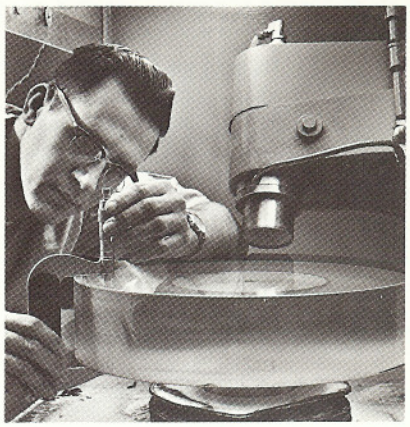
BOTTOM RIGHT: Among Librascope's complete line of computing encoders is a Size 11 brush-type, one of smallest built.







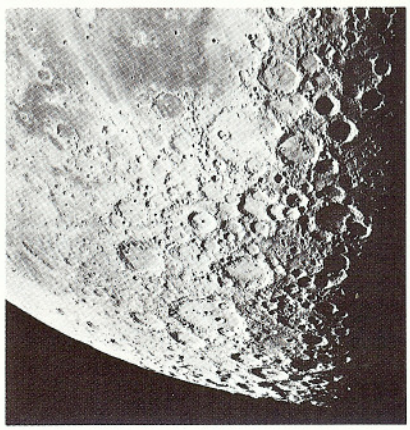
OPTICAL SYSTEMS AND PRODUCTS

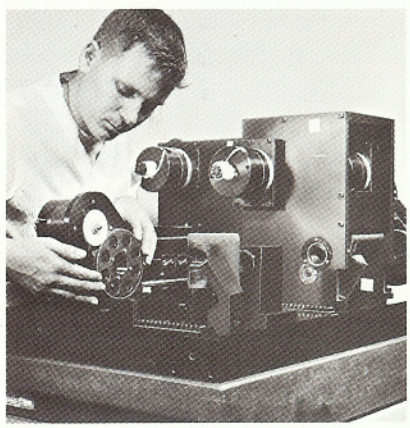


TOP: Optical technician measures glass blank prior to cutting glass with diamond tool into required shape for an optical generator.

MIDDLE: Optical systems and products designed and built by Librascope are used to pave the way for exploration of space, the moon, and nearby planets.

BOTTOM: Technician fits starfield plate in Apollo Mission Simulator Sextant Assembly, an exotic optical product manufactured by Librascope





From design and application work in computers have sprung numerous related disciplines and capabilities. One of these is optical and sensor design, stemming from the need to gather and display data in computer systems.

Librascope designs and manufactures electro-optical instruments for reconnaissance and surveillance systems, for optical tracking and associated instrumentation, and for projection systems. Some of these products include:

Telescope and Sextant Simulator: This exotic piece of hardware was produced for the three-man Apollo mission simulator for use in training astronauts for moon landings.

Pulsed Cine Phototheodolites: This is an optical tracking device used to follow and develop range data on in-flight aircraft and missiles. Two or more of these units are used simultaneously within a single tracking system.

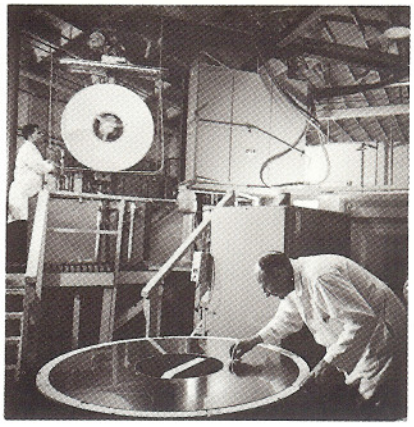
Stereo Ranging Systems: Using devices such as pulsed cine phototheodolites, these systems provide the capacity for tracking and ranging aircraft and missiles.

Airborne Periscopes: Units built by Librascope are designed to function with a number of advanced airborne observation systems.

Airborne Recording Cameras have been built to record data sighted by Librascope and other optical systems.

Helicopter and Supersonic Aircraft Pilot Sights are among other optical systems and products developed and manufactured for special applications.

MANUFACTURING AND FABRICATION



TOP: Memory discs up to 48 inches in diameter are coated with a magnetic plating prior to incorporation into disc-memory systems.

MIDDLE: Digital computer for an antisubmarine warfare fire-control system is assembled and checked out in Librascope's modern manufacturing facility.

BOTTOM: Librascope employees assemble computer encoders in ultra-clean assembly facilities in Glendale.

Librascope's manufacturing facilities have been developed specifically to implement the leadership created by products developed in its research laboratories and its engineering centers.

Facilities for plating, machining, electronic assembly, test, and reliability functions occupy some 150,000 square feet of space. Featured capabilities include:

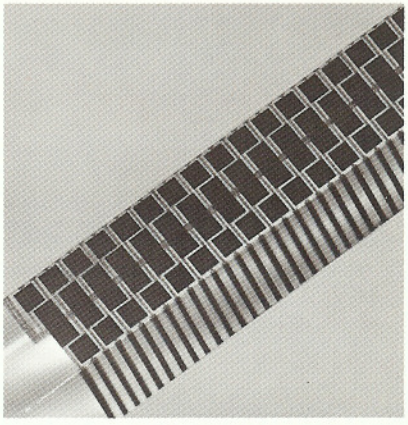
- A high concentration of numerically controlled machine tools for drilling, milling, and jig-boring operations to regular tolerances of up to one fifty-millionth of an inch (0.000050 in.).
- An outstanding "clean room" for the assembly of encoders, integrators, memory heads, and other products that require assembly in stable, dust-free conditions.
- A high-precision facility for the design and production of close-tolerance, miniaturized printed circuits.
- The Free World's outstanding facility for the plating of computer memory discs. Librascope operates the only disc plating plant in existence with a capacity to plate discs up to 48 inches in diameter.
- Manufacturing standards and gauging devices to match the most stringent military, aerospace, and industrial production requirements.

RESEARCH AND DEVELOPMENT

TOP: Research in the structure of materials is conducted at Librascope's Advanced Technology Center with an electron microscope.

MIDDLE: New advances in detector-array technology permit Librascope to manufacture microminiature infrared detector such as one pictured here, enlarged 26 times.

BOTTOM: An image on a LIBRACOAT controlled electroluminescence display screen lasts for more than an hour, in comparison with fractions of a second on a TV screen.

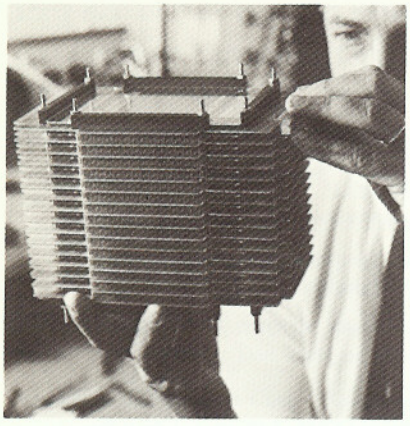


The Age of Computers has already brought to light wonders undreamed of a generation ago. Research and development, the key to this progress, is the focal point in Librascope's organization from which tomorrow's products will emerge. Librascope's Advanced Technology Center guides and coordinates the many R & D programs undertaken by the company in all areas of computer science and technology.

Librascope's research scientists develop and test new materials and designs for detectors, signal processors, data systems, displays, and other techniques and devices. These are aimed for use in the broad areas of data processing, computing, and control systems.

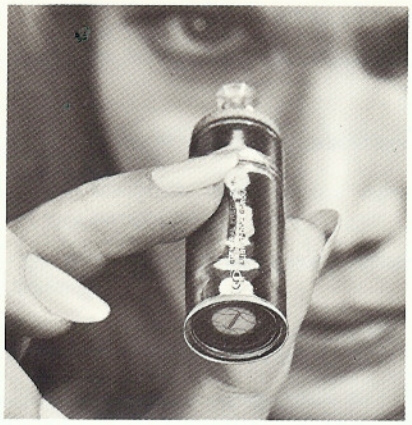
Infrared and visible-range detectors and detector arrays of great accuracy are examples of sensing devices fabricated with unique techniques at Librascope's Advanced Technology Center. Librascope scientists and engineers have made important contributions to methodology for the sensitized coating of conductive detector elements.

The center's studies of associative-memory systems have received wide recognition throughout the information technology field. As part of this effort, Librascope conceived the first associative memory suitable for navigational and weapons-control applications in airborne computers. Using an associative memory, a computer can search for data according to content or mission identification criteria rather than being restricted to fixed-address references. This provides in-



TOP: Researcher checks out a stack of woven thin-film memory planes. This high-speed memory can be used in associative-memory computers.

BOTTOM: Physicist pours liquid nitrogen into a Dewar system during tests of infrared detectors at very low temperatures.

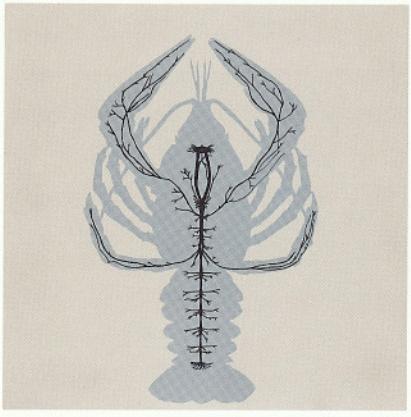


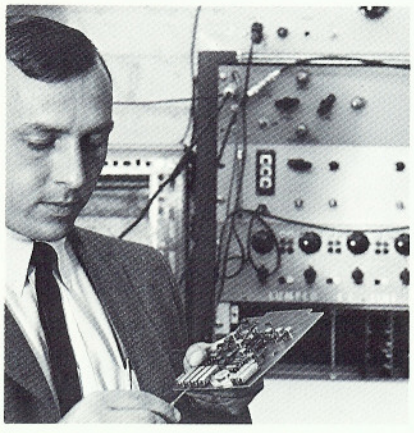
TOP: A tiny infrared detector array fabricated at Librascope is pictured at the end of a Dewar.

Pioneering work in the simulation of living nervous systems at Librascope has led to development of an electronic nerve net (part shown on circuit board below) similar to the cardiac ganglia of a lobster (drawing at top).

formation to the computer system more effectively and in less time.

Librascope research in the fields of man-machine communications and automata is laying the groundwork for the earliest practical developments in the areas of simulation of human behavior and make-up. Basic research programs at the center include investigation of pattern recognition, artificial intelligence, and neural modeling.





Major contributions to the development of ultrafast, lightweight memory systems for computers have been made through research-and-development activities in the field of woven thin-film memories. Work done at the center has contributed directly to the marketing of the first woven thin-film memory planes introduced in the United States. With new production techniques developed here, thin-film memories, previously prohibitive in cost, can be woven through the use of techniques similar to the making of cloth.

Another important concept introduced by Librascope's Advanced Technology Center has been a technique for the production of electroluminescent display screens with controlled image storage. Screens built with the "LIBRACOAT" techniques of deposition have built-in data memories. Images can be retained within the coating on the face of the screen for up to an hour. This greatly expands the information processing potential of computerized or instrumented data systems.

Research programs like these, pressing forward the very frontiers of science and human knowledge, will determine the shape and substance of Librascope's continuing future growth. These programs are conducted in the atmosphere that has characterized Librascope's "climate for ingenuity" for nearly 30 years.

STRONG CORPORATE BACKGROUND

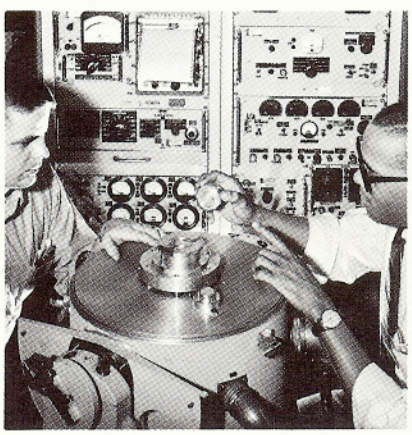
The "climate for ingenuity" that has stimulated Librascope's growth has been greatly aided by a long and strong relationship with its parent company. Librascope became a subsidiary of General Precision Equipment Corp. of New York in 1941. It was consolidated with other GPE organizations in early 1960 to form a new electronics company, General Precision, Inc. Today, General Precision, Inc., is the principal operating subsidiary of GPE and consists of Aerospace Group, Librascope Group, and Link Group. General Precision, Inc., accounts for 87 per cent of total GPE sales.

Productivity of a General Precision company is never restricted by the limits of its own specializations. Member companies often exchange plant facilities and technical advice to solve design and production problems. Components and products of a General Precision company are often used by others. General Precision's continuing policy is to encourage engineering and technical personnel of each of its companies to seek the optimum solution to a customer's problem by applying all relevant techniques of the entire General Precision organization.

General Precision companies employ some 13,000 people, including more than 3000 in engineering. General Precision has 15 major plant locations, which include laboratory, drafting, model shop, pilot plant, testing, and manufacturing facilities.

TOP: Headquarters for General Precision Equipment Corp. and its principal operating subsidiary, General Precision, Inc., is Tarrytown, N.Y.

BOTTOM: Engineers check low-cost inertial system built by Aerospace Group of General Precision, Inc. This system is for aerospace navigation applications.



Long one of the "top 500" industrial firms in the United States, General Precision Equipment Corp.'s companies and principal products are:

GENERAL PRECISION INC., Tarrytown, N.Y., principal operating subsidiary

AEROSPACE GROUP, Little Falls, N.J. --- Electronic systems and components for guidance, control, and navigation

LINK GROUP, Binghampton, N.Y. --- Electronic systems for space mission and aircraft simulation and training

LIBRASCOPE GROUP, Glendale, Calif. --- Computers, data processing systems, and components for military and industrial uses

Character Recognition Corp., Binghampton, N.Y. --- Character recognition equipment

Graflex, Inc., Rochester, N.Y. --- Photographic equipment

National Theatre Supply Co., Tarrytown, N.Y. --- Theatre and TV equipment

Strong Electric Corp., Toledo, Ohio --- Lighting equipment

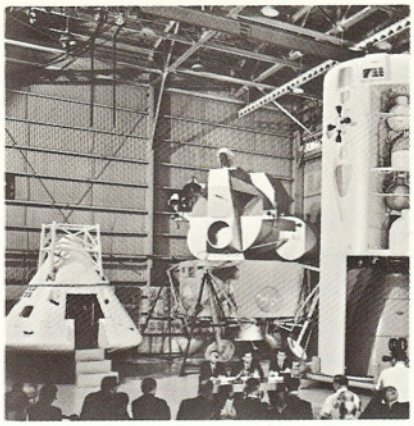
General Precision Systems, Ltd., England --- Simulators and control equipment

Tele-Signal Corp., Hicksville, N.Y. --- Electronic communications equipment

In addition, GPE participates in a globe-circling series of joint-venture and subsidiary operations which carry out similar activities in every part of the Free World.

General Precision operates around the world. It has plants, affiliates, and licensees in most key international market places, indicated here by symbols.

● **SUBSIDIARIES' PLANTS**
■ **AFFILIATES**
▲ **LICENSEES**

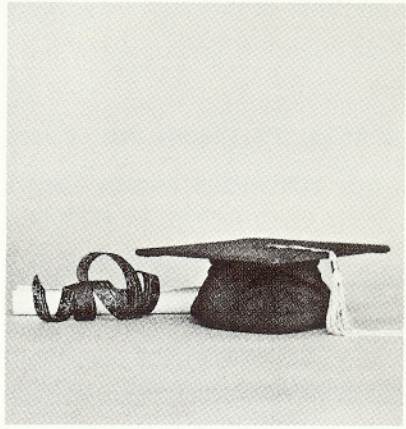


TOP: Link Group of General Precision, Inc., is producer of the simulator for the Apollo moon vehicle, shown during press conference.

MIDDLE: Graflex, Inc., a General Precision subsidiary, recently introduced the Graflex XL camera system that is capable of handling variety of film and lenses.

BOTTOM: The Precision 700 closed-circuit TV camera manufactured by GPL Division of General Precision's Aerospace Group, is one of the most popular ever produced.

CLIMATE FOR INGENUITY: PROFESSIONAL GROWTH



TOP: Librascope encourages a "climate for ingenuity" by sponsoring many educational programs in cooperation with universities and colleges.

MIDDLE: A climate to grow professionally has long characterized Librascope's management philosophy. Many engineers and scientists have rapidly risen to technical leaderships after joining the company directly from college.

BOTTOM: An incentive program at Librascope encourages engineers and scientists to write papers for professional symposia and journals.

For nearly 30 years, Librascope's technically oriented management has provided an atmosphere conducive to personal growth for professional scientists and engineers—a "climate for ingenuity."

More than 25 per cent of all Librascope employees are scientists or engineers. Of these, more than 85 per cent are engaged in challenging, creative assignments directly involving research or product development.

Special policies and programs have been developed especially to cultivate these talents which collectively make up Librascope's most important assets — its people and their ideas:

Librascope Educational Assistance Plan (LEAP): This plan recognizes that continuing professional growth is vital to each individual as well as to Librascope as a whole. To achieve professional growth, LEAP incorporates a series of educational programs which can be selected at the option of the individual:

- **Tuition reimbursement,** for courses that help the employee increase his technical knowledge, become more effective on the job, prepare him for advancement, and continue his self-development.
- **Study for professional degrees,** with tuition reimbursement and work schedule adjustments individually arranged.
- **Fellowship programs** involving part-time work and full-time

The shape of new technologies within the computer and related fields can well be characterized by the tiny integrated circuits being checked at Librascope. This circuit replaces many transistors and other electronic elements in computers, which in their time replaced many of the mechanical rods and gears in the earliest computers.

on-campus study for advanced degrees. Employees qualifying for fellowship programs receive full tuition and textbook support.

Professional Society Membership Plan: Librascope encourages participation in professional societies, paying part of membership costs and assisting members who become officers or special program participants.

Patent Incentive Plan: Creative professional employees participate in the benefits derived from patentable products resulting from their efforts. Full resources of legal and documentary staffs are available to assist professional employees in the development of patent applications.

Writing Incentive Plan: This program assists professional personnel with the preparation, submission, and publication of professional papers and articles. The plan covers the full spectrum of professional publication activities, including special incentive payments for authors and comprehensive assistance with writing, editing, and documentation.

All of the professional plans and programs are supported by an outstanding library facility geared to work in close support of research and study efforts. Librascope's own collection of scientific and professional works is pre-eminent in its field. In addition, a continuing program of acquisition of documents and interchanges with other libraries puts outstanding support behind every professional effort within Librascope.

All of these benefits are in addition to a well-developed employee-benefit plan competitive in the industry that includes life and health insurance, vacations, sick leave, and retirement benefits.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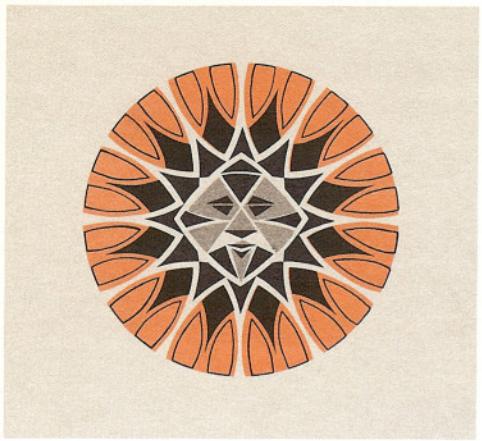
CLIMATE FOR INGENUITY: LIBRASCOPE AND THE FUTURE

In essence, Librascope's future is the future of computer technology and science.

Backed by the strong resources of General Precision, Librascope will continue to provide its customers with the inventiveness and service needed to identify and solve their requirements. As it has for the past 30 years, Librascope will contribute more than its share of invention and production in the unfolding Age of Computers.

And, Librascope will continue to nurture the "climate for ingenuity" that allows its people to press forward technologically and upward professionally.



Climate for Ingenuity

GENERAL PRECISION INC.

LIBRASCOPE GROUP

808 WESTERN AVENUE • GLENDALE, CALIFORNIA 91201

Telephone (Area Code 213) 245-8711 • TWX 213-240-2117