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LITTON INDUSTRIES ANNUAL REPORT, FISCAL YEAR ENDED JULY THIRTY-ONE, NINETEEN HUNDRED SIXTY-TWO



The Cover:
For 2,500 years, the Acropolis in Athens has been the ideological birthplace of all men, in all lands, who have believed in freedom. The ancient Greeks, though surrounded by a dark world of fear and superstition, were the first to seek and know liberty. Their writings have ever since inspired the movement of all mankind toward freedom. ☞ The Greeks, too, were the first to understand that freedom is wedded to responsibility. One of the foremost characteristics of life in ancient Athens was the precise balance between the individual's civic duties and his right to live as he pleased.

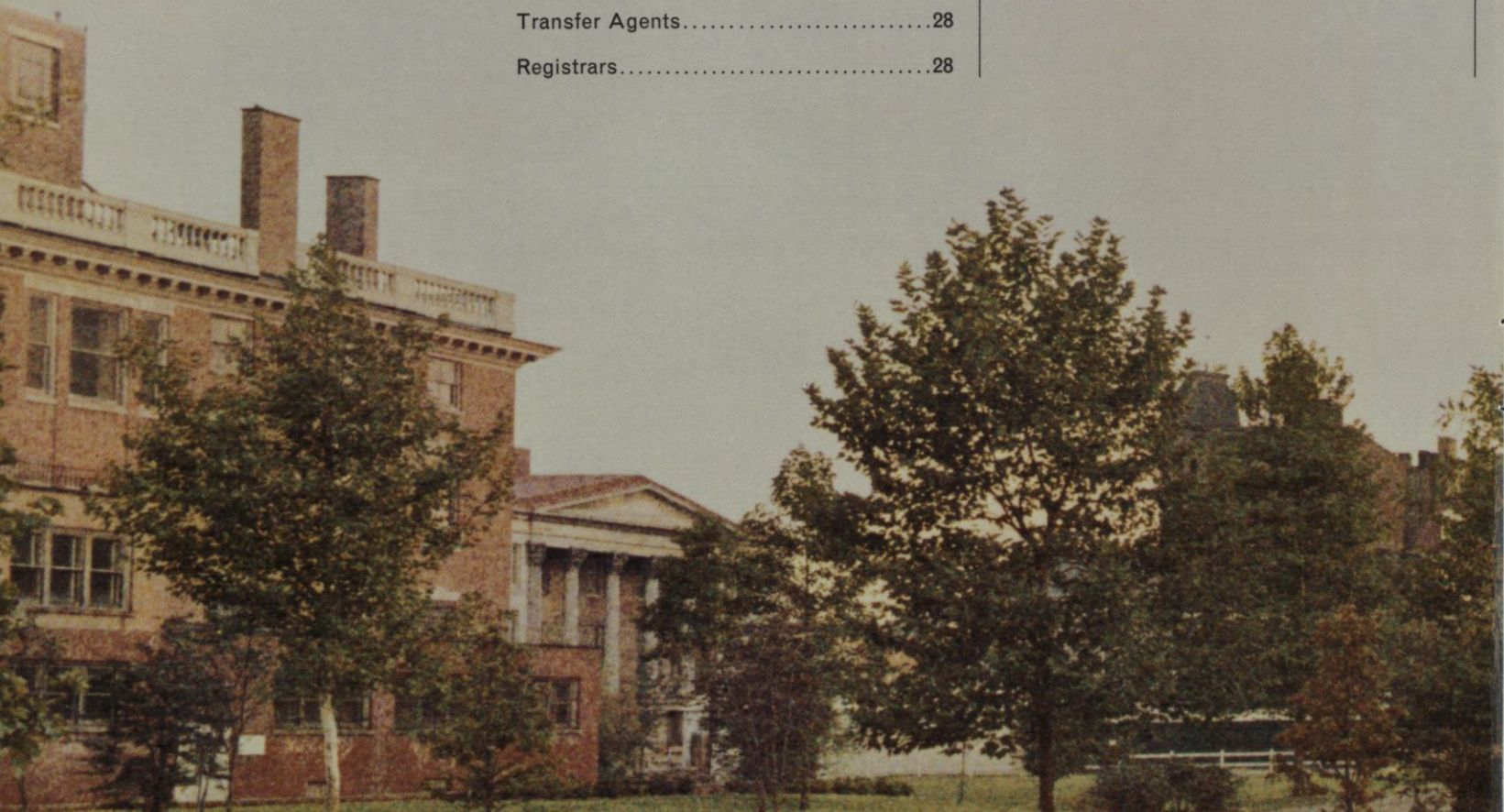
Everywhere on our side of *The Wall*, there is some stone, some plaque, some place that reminds us that here, in our town, beside our river, or above our valley, brave men once stood and pledged their lives for freedom—their freedom, and ours. ☞ Often the shrines of freedom are the actual sites where men, defending their homes, established the basic blend of rights and responsibilities that characterize true freedom. Other times the shrines—especially those of the Twentieth Century—commemorate a commitment to fight for freedom in far-distant places, wherever it is threatened. ☞ There is in man, as our forefathers declared, a God-given urge to be free. The innate longing for liberty is so fundamental a part of the human condition that, even behind *The Wall*, there are incessant stirrings. We hear of them in the smuggled outcries of their writers and the ceaseless flow of their refugees. And we know that, despite temporary setbacks, freedom has always prevailed—whenever its followers remember that liberty is not a gift; it must be earned. ☞ For we are not free to shout “fire” when there is no fire. To speak and act freely, we must be accountable for our words and our actions. Liberty is a privilege, paid for with responsibility. ☞ Having flourished as part of a free society, Litton Industries is proud to accept its responsibility to strengthen that society by creating the highly advanced systems that protect freedom, and by producing the equipment for commerce and industry that bolsters freedom's vital economic base. And the 1962 Annual Report of Litton Industries is thus dedicated to the day when all mankind will have leaped over *The Wall*.

LITTON INDUSTRIES ANNUAL REPORT 1962

For the Fiscal Year Ended July 31

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In Carpenter's Hall, Philadelphia, the first Continental Congress proclaimed the principle that taxation without representation is tyranny. Soon thereafter, in this same area of the city, American patriots wrote the Declaration of Independence, one of the most stirring expositions of man's God-given urge to be free. A few miles from this historic site are the headquarters of our Aero Service Corporation, aerial map-makers and explorers. Through the mapping and exploration of the world's natural resources, Aero Service is making a unique and important contribution to freedom's economic base, especially among the newly developing nations of Africa, Asia and South America.





TO OUR SHAREHOLDERS:

The company again demonstrated the vigor of the free world's profit-motivated economic system by its achievements in fiscal 1962.

Sales climbed 57%. Profits increased 61%. Earnings per share were up 50%. We employed 64% more people.

SALES

The sizable increase in sales—to a total of \$393,807,709 for 1962 compared with \$250,114,456 for 1961—was the result of increases by every one of the major product areas of the company. The percentage of total sales which was achieved in each of these areas was: business machines, equipment and related supplies and services, 32%; electronic systems, equipment and services for the free world's defense, 32%; nuclear submarines and other marine vessels and systems, 14%; industrial and commercial electronic equipment and services, 11%; and electron tubes and precision components for electronic systems, 11%.

The historical ratio of approximately 50% of our products serving defense and 50% being delivered for use by commerce and industry still pertained this year. Foreign customers once again were the recipients of about 25% of the goods and services that made up our total sales, while our manufacturing and servicing facilities outside the U.S. were the basis for approximately 15% of our total revenue.

Of the total gain in sales this year over last, almost \$70,000,000 represented either new products that had been released from our laboratories this year, or increased sales of products that had been in production previously, while the remainder resulted from the acquisition of four companies.

EARNINGS

Earnings for the year increased commensurately with sales, while at the same time the normal costs of this expansion—the start-up costs for new production facilities, the expenses involved in expanded sales and service capabilities, and the cost of additional working capital that was required to meet day to day demands—were borne fully by the year's operations. The after-tax profit on sales was 4.14%.

Earnings before taxes amounted to \$30,849,499. Federal and foreign taxes on income totaled \$14,533,547, leaving net earnings after taxes of \$16,315,952. Every product group of the company contributed to this new earnings record.

After payment of preferred stock dividends, earnings were \$3.36 per share of common stock, a 50% increase over the \$2.24 adjusted per share earnings of the previous year.

FINANCES

Our financial strength on July 31, 1962, was greater than at the end of any previous fiscal year. Net working capital at year end was

\$113,478,440, up 54% from the year before.

In order to meet the expansion requirements of the immediate future which have resulted from our increase in sales, and to allow, in part, for our planned future growth, the net value of property, plant and equipment was increased 66% to \$62,966,812. Depreciation for the year totaled \$8,527,000, up 66% from last year. Total assets were up 56% to \$269,491,286. At year end the ratio of current assets to current liabilities was 2.44 to 1.

In April 1962, \$50,748,200 of convertible debentures were sold in an offering to stockholders. The proceeds were applied to payment of debt and to further strengthen our financial position preparatory to continuation of our program of expansion.

Conversions of preferred stock and debentures, acquisitions through issuance of stock, and a 2½% stock dividend increased the number of shares outstanding to 4,833,857, 11% more than a year ago. At the same time the number of shareholders of record totaled 32,755, up from 21,936 at the end of 1961.

FACILITIES

The company's growth during the last fiscal year was also apparent in the new facilities which were constructed or leased, mainly to meet increasing production requirements.

By the close of the year, the company had 67 manufacturing plants and major research and engineering laboratories. Forty-six of

On August 1, 1291, the free men of this mountain town of Schwyz, threatened by the Hapsburg tyranny, joined with their fellow freemen in neighboring Uri and Nidwalden to form the "Everlasting League." Their purpose was self-defense. This League not only became the foundation of the Swiss confederation, but has served ever since as an example to free men everywhere that by pooling their resources they can preserve their liberty. ☛ In Zurich, not far from Schwyz, Litton Industries maintains its European headquarters. From this central location, our representatives coordinate the company's participation in Europe's rapidly ascending economy.

these were located in 15 states of the U.S. and 21 were in nine foreign countries, with the area devoted to plants and laboratories totaling 6,150,685 sq. ft. In addition, sales and service operations throughout the free world occupied almost 800,000 sq. ft. of modern office, display and warehouse space.

Largest of the new plants constructed this year was a 100,000 sq. ft. building in Woodland Hills, Calif. A 43,000 sq. ft. addition, housing a new dust-free "clean-room" for ultra-precise assembly and supporting equipment, brought the three-structure complex at Woodland Hills to approximately 500,000 sq. ft. in size.

New production facilities occupied during the year also included a leased 61,000 sq. ft. plant in Canoga Park, Calif.; a 50,000 sq. ft. building constructed at Salt Lake City, Utah; a new 60,000 sq. ft. plant at Troy, Pa.; an additional 52,000 sq. ft. facility purchased in Philadelphia; a new plant in Ottawa, Canada, of 25,000 sq. ft.; a 20,000 sq. ft. building leased in Chatsworth, Calif.; and a new 32,000 sq. ft. building in Huntington, Ind. In addition, a 42,500 sq. ft. plant was leased for a new production operation in Duluth, Minn. soon after the end of the fiscal year.

In overseas expansion, Fritz Hellige and Co. at Freiburg, Germany, added 50,000 sq. ft. to its original structure and had a new 80,000 sq. ft. complex under construction.

The C. Plath operation at Hamburg, Germany, increased its operational areas by leasing 20,000 sq. ft. and by constructing an 11,000 sq. ft. addition to its present plant.

Additionally, plans were formalized to increase production capacity in the coming year. A 60,000 sq. ft. building is already under construction in Moosic, Pa. An additional 24,000 sq. ft. building will be constructed in Salt Lake City, Utah, and 30,000 additional sq. ft. will be added in Rexdale, Canada. A new building also will be erected at Pomezia, Italy, for Litton Italia. In all, plans for approximately 400,000 sq. ft. of new construction have been approved for the coming year to fulfill production commitments.

At the end of the year the company had 37,700 employees throughout the world. Our continuing growth had increased by nearly 15,000 the number of people the company employed around the world.

OPERATING DIVISION ACTIVITIES

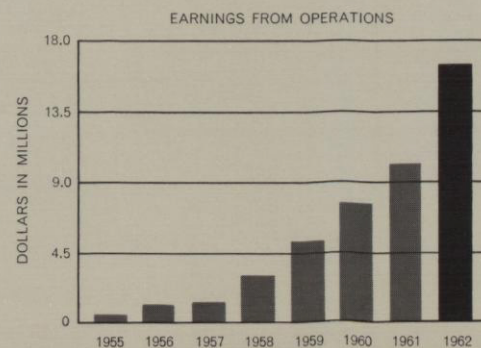
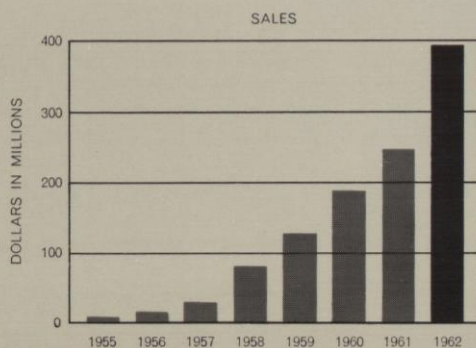
The company has continued to progress and to prosper over the years by virtue, in part, of having delegated many of the operating decisions and responsibilities to decentralized, autonomous operating divisions, all within an overall management plan. Today the company's products and services are developed and produced in 30 divisions, each headed by a divisional manager who is responsible for operating results.



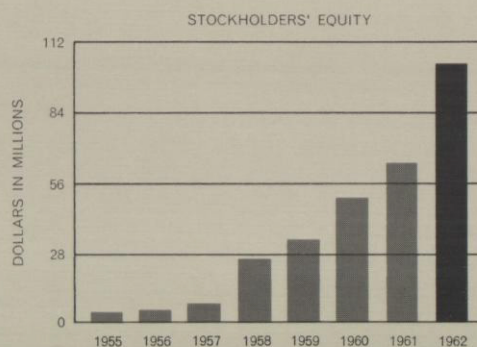
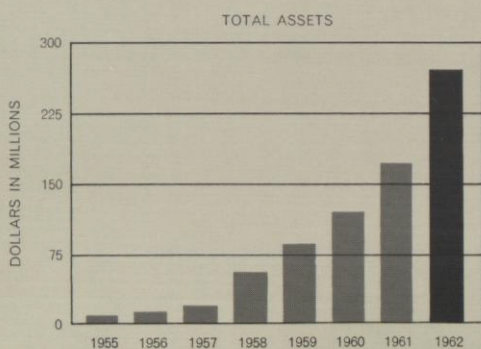
HIGHLIGHTS OF EIGHT YEARS' OPERATIONS

Fiscal Years Ended July 31

	1962	1961
Operating Results		
<i>Sales and service revenues</i>	\$393,807,709	\$250,114,456
<i>Earnings before taxes on income</i>	30,849,499	19,687,457
<i>Federal and foreign taxes on income</i>	14,533,547	9,529,134
<i>Net earnings</i>	16,315,952	10,158,323
<i>Per common share outstanding at year-end**</i>	3.36	2.24
<i>Depreciation</i>	8,527,000	5,131,267
Financial Position (Year-End)		
<i>Net working capital</i>	\$113,478,440	\$ 73,631,064
<i>Property, plant and equipment—at cost</i>	106,787,138	60,860,252
<i>Accumulated depreciation</i>	43,820,326	22,987,124
<i>Net property, plant and equipment</i>	62,966,812	37,873,128
<i>Total assets</i>	269,491,286	172,771,125
<i>Stockholders' equity</i>	102,934,058	63,730,972
General Statistics (Year-End)		
<i>Shares of common stock outstanding**</i>	4,833,857	4,477,480
<i>Number of stockholders of record</i>	32,755	21,936
<i>Number of employees</i>	37,700	23,000



1960	1959	1958	1957	1956	1955
\$187,761,242	\$125,525,561	\$83,155,473	\$28,130,603	\$14,920,050	\$8,898,797
15,365,182	10,805,756*	7,044,437	3,232,493	1,995,703	679,413
7,910,328	5,851,725	3,342,234	1,426,000	976,000	243,000
7,454,854	4,954,031*	3,702,203	1,806,493	1,019,703	436,413
1.67	1.27*	.99	.70	.45	.20
3,213,720	2,235,128	2,090,083	693,218	430,607	340,000
\$ 53,846,309	\$ 38,741,071	\$23,117,831	\$ 6,731,958	\$ 2,655,003	\$1,130,111
41,545,708	29,633,695	22,781,070	7,277,766	4,648,181	3,632,193
17,563,971	11,850,224	7,915,605	1,939,535	1,144,109	788,231
23,981,737	17,783,471	14,865,465	5,338,231	3,504,072	2,843,962
119,004,373	83,254,170	57,750,861	16,823,383	10,826,182	7,647,918
50,568,249	34,546,600	27,994,799	7,785,419	4,533,177	3,442,160
4,369,131	3,774,274	3,642,882	2,571,585	2,254,651	2,081,834
16,322	8,589	5,801	4,500	3,000	1,700
17,400	12,400	8,600	2,700	2,000	1,100



*Excluding special income credit of \$1,021,000 or 27c a share.

**Adjusted for stock dividends and the December, 1959, stock split. (See Note D of Notes to Financial Statements)

Note:

The operations of businesses treated as poolings of interests are included above since the year of their affiliation with Litton Industries, Inc. (See Note A of Notes to Financial Statements)

BUSINESS MACHINE INTRODUCTIONS

No more dramatic case history than that of the Business Machines Group could be found to illustrate the vitality of this plan.

The Business Machines Group includes the following divisions: Monroe Calculating Machine Company; Monroe|Sweda Cash Register division; Svenska Dataregister AB; Cole Steel Equipment Company; A. Kimball Company; Integrated Data Processing, Inc.; Simon Adhesive Products Corp.; and the most recent addition, acquired early in fiscal 1962, Eureka Specialty Printing Company. The events and happenings of significance this year in these divisions were numerous.

As the result of intensive development activity in preceding years, the Business Machines Group introduced more new products than in any comparable period in its history.

These new products included Monroe's new printing calculator, the Mach 1.07, the world's fastest printing calculator, and the Monroe|Sweda Dataregister, a 30-total point-of-sale transaction recorder which can be linked to electronic data processing systems. At the same time the group announced a new Monroe-developed magnetic record card. The size and shape of an ordinary tabulating card, the Monro-Card has a magnetic oxide coating which gives it the capacity of storing 1500 digits of information, or 10 to 15 times the number of digits of a standard 80-column

Lincoln Cathedral, in England, houses the finest copy in existence of the original Magna Carta, issued at Runnymede by King John in 1215 at the insistence of his rebellious barons. Ever since, the Magna Carta has been not only a milestone in specifying the rights of Englishmen, but a symbol to all mankind of the rights and responsibilities of free men. ☞ In England, today, these same principles, first granted by the Magna Carta and strengthened throughout the years by a living constitution, are protected in part by the products of Elliott-Litton, Ltd., which is affiliated with our Electron Tube Division.

punched card. Along with the new card the Monroe division introduced a Monro-Card Processor, an additional input-output device for our Monrobot XI electronic computer which both adds to and reads information on these cards. Complementing these products, introduction was also made of the 8F-213, the most compact fully automatic rotary calculator ever offered.

At the same time, the Kimball division introduced its new Kard Pack unit which, connected to punched tag readers, enables data from as many as four merchandise tags to be encoded on a single punched card in one pass through the data processing machine.

Prior to these introductions the Business Machines Group had brought out the IQ-213, the only rotary calculating machine with a memory; the Cole division had introduced a complete new line of office equipment; and Integrated Data Processing, Inc., had introduced a new data analysis program in which clients generate source data on punched tape directly through adding or accounting machines, the tapes later being processed at an IDP center into financial reports. The Monroe Division and IDP combination is today the chief supplier of punched tape systems for use by accountants.

Commensurate accomplishments occurred in other areas of the Business Machines Group operations. For example, 40 new deal-



ers were appointed to handle the Monroe|Sweda line; the IDP Division opened a new service bureau on the East coast and another on the West coast; and Monroe|Sweda products were added to a number of Monroe's United States branches.

MONROBOT XI INSTALLATIONS

More than 150 Monrobot XI general purpose computers had been sold between the December 1960 sale of the first unit and the end of fiscal year 1962. The customers and applications included bond houses that sought a faster and more accurate method of figuring bond bids; stock brokerage firms that desired a more reliable and faster way of getting out customer transaction confirmations; dairies and soft drink bottlers, both of whom sought a faster, cheaper, and more reliable way of preparing driver settlement reports and doing the other functions involved in route accounting; and an electrical manufacturer that sought, at Monroe's unique low price, a computer system for inventory control. Also, Monrobot XIs were purchased by oil companies for accounting at bulk plants, terminals and refineries; banks to write treasury bill confirmations; newspapers, electronic components manufacturers and the world's largest laundry, all of which use the Monrobot XI to compute salaries and commissions; aerospace firms for simplified quality control and systems con-

trol; electronic firms and steel manufacturers to maintain production schedules; poultry ranchers, drug firms, public warehouses and manufacturers for inventory control and sales analysis; municipalities for computing tax bills; the U. S. Post Office for analyzing mail costs; and the National Institute of Health to compile medical statistics.

Increased sales of other Monroe business machines, including over 900 Monroe Data/Log printers installed by United Airlines for their *Instamatic* Reservation Systems, also contributed to the company's success during the last fiscal year.

The Monroe|Sweda line of products—point-of-sale registers and recorders—enjoyed by a wide margin the best year in its history. Since the Sweda name became a part of Litton in fiscal 1960, the manufacturing facilities in Stockholm have been more than doubled, sales have been doubled, and the number of sales and service outlets have been increased by 50%.

Other records are being made by each of the Business Machines Group divisions. The group's aggressive activity has made it the fastest growing supplier of office equipment, services and supplies in the industry.

DEFENSE SYSTEMS EXPANSION

The Defense Equipment and Systems Group, which is unified under the corporate identification of Litton Systems, Inc., includes

the following separate divisions: Guidance and Control Systems, Data Systems, Maryland, Westrex Communications, and the newly acquired McKiernan-Terry division. The almost 40% gain in sales experienced by this group reflected its transition into volume production on programs which had their origins in our advanced technological developments of earlier years.

INERTIAL GUIDANCE SYSTEMS

By the end of the year, the company had become the acknowledged leader in the field of inertial type navigation systems, and was the only company manufacturing these advanced systems, with such a high degree of accuracy, for operational fighter aircraft. Further strengthening its leadership in this relatively new field, the company during the year received important new production contracts that materially extended its schedules, and new development contracts which assured continuation of production throughout the present decade and into the next.

A year ago the company was engaged in five major programs, related to inertial guidance, for three customers. Today there are 12 major programs in this field being conducted for twice that many customers.

The latest addition to the list is McDonnell Aircraft Corp. and the U. S. Air Force, who in July 1962 formally announced selection of Litton's proven inertial system for installa-



tion in the new F-4C fighter aircraft (formerly called F-110). Thus the F-4C becomes the first operational U. S. Air Force fighter to be equipped with an inertial navigation system. Within two months after receipt of initial funding for 300 systems, the first prototype system, designated the LN-12A, was delivered to the customer.

Its production was readily phased into production schedules for the LN-3 inertial systems being produced in quantity for delivery to Lockheed and its licensees for F-104G strike fighters in operation in Europe and Canada. Despite the complexity and microscopic precision of these systems, they are being produced at an unprecedented rate.

To insure that the next generations of attack aircraft will also have advanced navigation systems, the company was awarded a contract to develop a system employing a miniaturized gyro-stabilized platform and the latest techniques in circuit micro-miniaturization. From this ASN-44 program will come inertial systems for aircraft destined to follow the multi-million-dollar F-104G and F-4C programs down the assembly lines.

With requirements for missile and space production reaching quantitative importance, the company accelerated its efforts in this field, and, as a result, received an important contract from the U. S. Air Force to extend development of its Flight Data System for

manned or unmanned space vehicles. The system is designed to gather and process both inertial and aerodynamic data in order to provide astronauts, or automatic control systems in unmanned space vehicles, with accurate navigation information. The system will function from blast-off through extended orbit, re-entry, approach and landing. Under the new contract the Flight Data System will be tested extensively under simulated conditions, and flight tested in the X-15 research aircraft and in certain missiles. Successful completion of this program should find Litton navigation and control systems firmly established in the space travel field.

In the course of the year, a varied number of contracts was received by the company for navigation systems and related computer equipment. Particularly significant to the company were those extending our work in the P-3V submarine-hunting patrol aircraft, the W2F patrol aircraft for fleet air defense, and the A-2F attack bomber.

Another field in which the company made marked strides was that of central air data computers. Contracts received during the year assured our participation in important military programs: the North American RS-70 supersonic bomber, a new bombing-navigation system being developed by the U. S. Navy, and Mirage III jet fighters ordered by Switzerland. The Swiss order for 121 systems

constitutes the first overseas order for Litton's central air data computer, which employs a totally new approach in presenting to the pilot accurate information on altitude, mach number, indicated air speed, true air speed and air temperatures.

PLASMA PHYSICS RESEARCH

The company's promising research in the technology of plasma physics was extended and broadened with receipt of two additional Air Force prime contracts. Four Air Force research programs, including one basic research program and three separate but allied programs, lead us to believe that Litton will be among the leaders in the emerging technology of plasma dynamics, on which may depend the success of space missions far into the future. To implement these new programs, a traveling wave plasma accelerator of the continuous wave type and a propulsion laboratory equipped for expansion of our plasma thrust engine development work were added to the Space Sciences Laboratory.

TACTICAL DATA SYSTEMS

During the year the Data Systems division greatly expanded its facilities for producing command and control systems. The division is meeting schedules for delivery of tactical air operations centers to the U. S. Marine Corps and airborne tactical data systems to Grumman Aircraft Engineering Co. Ultimate use of the airborne units is by the U.S. Navy



in providing an early warning and control defense around a fleet.

The Marine Corps Tactical Data System, which can be transported by ship, aircraft or helicopter to a beachhead anywhere in the world in the rapid response time required in modern warfare, is the most advanced mobile air defense and control system in production in the world today.

The airborne systems, which automate the many functions that must be performed quickly as a requisite of fast decision making and action, have the capacity of controlling all air traffic in an area equal to that of greater New York City. This is true even though the system is small enough to be carried aboard a two-engine carrier-based aircraft for many hours of early warning protection over a fleet.

The command and control systems in production were designed to be modular in nature, enabling their many advanced features to be incorporated quickly into competitively priced systems optimum for the needs of many other missions.

During the year the Maryland division delivered a unique information retrieval device which is being marketed by the Information Retrieval Corporation. It provides a practical system for business and research organizations to store and retrieve the increasingly large libraries of information that must be available on extremely short notice.

*Sunday, June 28, 1778 was
the most violent day of the crucial battle,
and Mary McCauley passed among
the men of her husband's company, helping
to load the cannon, and
bringing water from her pitcher to the
wounded. Thus she became
known to the grateful Americans during
the Revolutionary War's
Battle of Monmouth as "Molly Pitcher."
Today a statue commemorating
her valor stands in the Old Graveyard at
Carlisle, Pennsylvania. Nearby,
in York, Pennsylvania, the Cole Steel Equipment
Company, a division of Litton
Industries, produces business and office equipment
to support the economics
of our free society in the endless
battle for liberty.*

ILS MONITORS

The company also received during the year a follow-on contract from the Federal Aviation Agency for Instrument Landing System monitors to observe the performance of ILS systems at heavily trafficked U. S. airports.

The company also extended its activities in the radar and surveillance field, and obtained new major contracts in the expanding area of digital simulation.

COMMUNICATION SYSTEMS

Westrex Communications figured prominently in one of the nation's most dramatic space achievements during the year with transmission of photographs by facsimile equipment between points on earth by way of the Telstar communications satellite.

A first in the field of communications was achieved when Westrex International participated in the initial trans-Atlantic high-speed transmission of data. Newspaper copy was sent from the *New York Times* to the Manchester, England, *Guardian* at the rate of 1000 words per minute. Normal transmission speed is 66 words per minute.

As a forerunner of 14 more units to be delivered to Isbrandtsen Steamship Line, a Westrex Navfax was installed aboard one of the line's ships for trials. Navfax is a ship-board instrumentation system integrating a time standard, echo sounder, precision depth recorder, facsimile weather map recorder and



multi-purpose radio receiver.

During the year, Westrex received its first production contract for the new model 6010 multi-purpose communications receiver, developed for the Navfax system. The order for 25 units came from the United States Coast Guard for shipboard use.

NEW RECORDING UNITS

Sales of commercial sound recording equipment and extreme environment recorders for military and scientific data continued under the Westrex Recording name.

During the year companies in Spain, India and Hong Kong installed Westrex sound equipment for the first time.

For space operation the company introduced a continuous-loop magnetic recorder, possessing unprecedented reliability and loading ease for use in extreme environments, such as missile re-entry.

POST YEAR-END ACQUISITION

Shortly after the end of the fiscal year negotiations were completed to acquire McKiernan-Terry Corp. of Harrison, N. J. In its 197,000-square-foot plant at Harrison and 77,000-square-foot facility at Dover, N. J., McKiernan-Terry manufactures structural radar antennas and sonar equipment, and similar hydraulic and mechanical equipment for military and industrial customers. These products complement those of a number of other Litton divisions who will reciprocally

lend their research and development strength to McKiernan-Terry.

The 70-year-old company brings to Litton Industries exceptional capabilities in large, high-precision structures such as the 380-ton antenna in the Telstar tracking station at Andover, Me. The huge tracking horn was built under requirements more exacting than any other structure of its size ever built. Despite its size it was built more accurately than a fine watch, a precision that was necessary in order to track the 36-inch satellite as it moves through space at 18,000 mph.

SUBMARINE CONTRACTS

During its first nine months as a division of Litton Industries, Ingalls Shipbuilding Corporation greatly strengthened its position in the shipbuilding industry by winning contracts to build seven new vessels.

Late in the fiscal year the U.S. Navy awarded Ingalls a contract for construction of another nuclear-powered submarine of the *Thresher* class. This is the seventh such contract Ingalls has received in the course of the Navy's current program of building an attack submarine fleet. It is anticipated that procurement in this program will be expanded even further in the next several years.

In June of 1962 Ingalls received a \$62 million contract to construct six of the world's fastest cargo ships for Moore-McCormack Lines. When completed in 1964 and 1965,

*In the days of sailing ships and
Forty-niners, the peoples of both the Orient
and the Occident braved these
treacherous currents off Point Lobos,
California in their search for
freedom and economic opportunity. In more
recent times, the Pacific has also
been the highway for the ships-of-war
that carried us to far-distant
waters in our continuing commitment to
freedom-of-the-seas. ☞ But the
Pacific also can serve as a highway for the
commerce that helps create a
lasting peace. Close to the Pacific coast are
many members of the Litton
family, including our Guidance and Control
Systems division, Data Systems division,
Electron Tube division.*



these 21-knot, 550-foot vessels will make an important contribution to the Maritime Administration's program of modernizing the U. S. Merchant Marine fleet.

With three vessels delivered to military and commercial customers during the year, while new orders totaled seven, Ingalls increased by four the number of ships it has in planning or construction stages. Delivered were the *Sculpin* and *Snook*, nuclear-powered submarines of the *Skipjack* class, and the *African Mercury*, 572-foot cargo vessel for Farrell Lines. Now in the water for final outfitting or scheduled for launching in early 1963 are five additional cargo vessels for Farrell. Military vessels in various stages of completion include nuclear submarines and a Polaris submarine tender. The subtender *Holland* is the second vessel designed specifically for supporting nuclear-powered Polaris-carrying submarines. To minimize the time that servicing and repairs keep the submarines from their missions far from home base, the tender is fully equipped with electronic shops and other specialized facilities which can be carried to distant oceans that are the frontiers of these long-endurance vessels.

During the year the division completed and delivered the largest all-welded aluminum marine vessel ever built. The vessel is now in regular service transporting chemicals to various areas in the south.

As a further extension of the division's capability in the construction of large floating equipment, Ingalls moved to take advantage of the expanded potential for off-shore oil drilling platforms which was unveiled during the year. In the spring of 1962, major U. S. oil companies had paid hundreds of millions of dollars for the rights to drill for oil off the Gulf Coast shore. The requirements this program imposed on drilling equipment were met uniquely in the past by Ingalls with the construction of the famous "Blue Water" rig, a floating drilling structure which permits all-weather drilling in water at depths previously prohibitive. The division also completed design of a deep-water platform for oil exploration which can be implanted in the ocean floor. Negotiations are currently under way to provide, either by lease or sale, similar equipments to oil companies who aspire to complete drilling in this off-shore area in the specified five-year period.

INGALLS AND SPACE

Ingalls is the largest specialized shipbuilding activity on the Gulf of Mexico. Its geographic location, supplemented by the broad technical skills and research capabilities of Litton Industries, gives it an advantage that is important to military and commercial, as well as space customers.

Houston, Texas, has been selected as the focal point of NASA space activities. As

a consequence, production facilities on the Gulf have become important sources of supply. This was demonstrated during the year when the combination of Ingalls fabrication and metallurgical facilities, and its proximity to new Saturn assembly plants in New Orleans, gained the division its first work for the nation's space program. An aluminum billet 37 feet long and five inches thick was successfully rolled to a curved shape, transforming it into an integral part of the first stage of the advanced C-3 Saturn, the future launching vehicle for long-range space missions. Success in rolling this 5400-pound billet brought Ingalls a subcontract for six more, making the division one of the first subcontractors on the huge missile.

ELECTRON TUBE PROGRESS

The company's sales of microwave and display tubes this year reached the highest total in our history. At the same time a record number of development projects were in active status at the Electron Tube division.

Deliveries of klystrons for the Ballistic Missile Early Warning System continued on schedule while an even higher-powered L-band klystron was under development for the next generation of radar systems.

Another development activity involved the determination of techniques of manufacturing an advanced microwave crossed-field amplifier. Under development for the past



LITTON INDUSTRIES, INC. AND SUBSIDIARY COMPANIES

CONSOLIDATED BALANCE SHEET

JULY 31, 1962

ASSETS

Current Assets:

Cash		\$ 12,289,436
Accounts receivable:		
Trade accounts	\$ 92,176,783	
Reimbursable unbilled expenditures under government contracts	<u>5,764,042</u>	97,940,825
Inventories, at lower of cost or market, less progress billings of \$40,445,935		78,549,327
Prepaid expenses		<u>3,453,681</u>
<i>Total Current Assets</i>		192,233,269

Investments in Unconsolidated Subsidiaries (Note A) 7,530,824

Other Investments 3,540,213

Property, Plant and Equipment—at cost:

Land	3,818,789	
Buildings	32,818,313	
Machinery and equipment	<u>70,150,036</u>	
	106,787,138	
Less accumulated depreciation	<u>43,820,326</u>	62,966,812

Other Assets:

Patents	387,688	
Excess of cost of businesses acquired over related net assets	1,245,418	
Other	<u>1,587,062</u>	<u>3,220,168</u>
		<u>\$269,491,286</u>

See notes to financial statements

LIABILITIES

Current Liabilities:

Notes payable	\$ 12,627,300
Accounts payable	37,856,166
Payrolls and payroll taxes	17,257,235
Federal and foreign taxes on income	9,865,789
Current portion of long-term debt	<u>1,148,339</u>
<i>Total Current Liabilities</i>	78,754,829

Long-Term Liabilities (Note B) 18,611,703

Deferred Service Contract and Other Income 9,018,496

Convertible Subordinated Debentures (Note C) 60,172,200

Stockholders' Equity (Note D):

Capital stock:		
Voting preferred, convertible, 5% cumulative, par value \$100 a share:		
Authorized 160,000 shares		
Issued and outstanding 12,805 shares	\$ 1,280,500	
Common, par value \$1 a share:		
Authorized 17,000,000 shares		
Issued and outstanding 4,833,857 shares	4,833,857	
Additional paid-in capital	47,246,717	
Earnings retained in the business	\$ 73,691,509	
Less amounts transferred to paid-in capital for stock dividends paid	<u>24,118,525</u>	<u>49,572,984</u>
		<u>102,934,058</u>
		<u>\$269,491,286</u>

Board of Directors, Litton Industries, Inc.
Beverly Hills, California

We have examined the consolidated balance sheet of Litton Industries, Inc. and subsidiary companies as of July 31, 1962, and the related statements of earnings, earnings retained in the business, and additional paid-in capital for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements referred to above present fairly the consolidated financial position of Litton Industries, Inc. and its subsidiary companies at July 31, 1962, and the consolidated results of their operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

TOUCHE, ROSS, BAILEY & SMART
Certified Public Accountants
Los Angeles, California, October 5, 1962

CONSOLIDATED STATEMENT
OF EARNINGS

Year Ended July 31, 1962

Sales and service revenues		\$393,807,709
Costs and expenses (including depreciation of \$8,527,000):		
Cost of sales	\$292,017,080	
Selling, general and administrative	67,994,201	
Interest	<u>2,946,929</u>	<u>362,958,210</u>
Earnings before taxes on income		30,849,499
Federal and foreign taxes on income		<u>14,533,547</u>
Net earnings		<u>\$ 16,315,952</u>

CONSOLIDATED STATEMENT OF
EARNINGS RETAINED IN THE BUSINESS

Year Ended July 31, 1962

Balance at beginning of year:		
Litton Industries, Inc. and subsidiary companies		\$ 36,559,121
Companies acquired during the year— accounted for as poolings of interests		<u>9,358,828</u>
		45,917,949
Net earnings for the year		<u>16,315,952</u>
		62,233,901
Deduct:		
Cash dividends on voting preferred stock— \$5 a share	\$ 77,594	
Cash dividends paid prior to acquisition by a company acquired in a pooling of interests	36,711	
Market value of 2½% stock dividend	<u>12,546,612</u>	<u>12,660,917</u>
Balance at end of year		<u>\$ 49,572,984</u>

See notes to financial statements

CONSOLIDATED STATEMENT OF ADDITIONAL PAID-IN CAPITAL

Year Ended July 31, 1962

Balance at beginning of year	\$ 20,366,578
Excess of market value of stock dividend over par value of common stock issued	12,438,769
Excess of stated capital of businesses acquired in poolings of interests over par value of common stock issued	3,469,894
Excess of market value over par value of common stock issued to purchase businesses	7,961,435
Excess of principal amount of debentures and voting preferred stock converted over par value of common stock issued	<u>3,010,041</u>
Balance at end of year	<u>\$ 47,246,717</u>

NOTES TO FINANCIAL STATEMENTS

Year ended July 31, 1962

NOTE A—Principles of Consolidation

The accounts of the Company and its wholly-owned subsidiaries have been consolidated in the accompanying financial statements.

As of October 31, 1961 the Company purchased for stock all the outstanding stock of The Ingalls Shipbuilding Corporation. The operations of Ingalls have been included since date of acquisition.

During the year the Company also acquired for stock the net assets of Eureka Specialty Printing Company, Aero Service Corporation and Poly-Scientific Corporation. These acquisitions have been treated as poolings of interests.

In its annual financial statements the Company consistently reports the operations of businesses acquired under the pooling of interests concept from the beginning of the year in which the acquisition occurs. On the basis of including operations of pooled businesses prior to their years of acquisition, sales for the fiscal years ended July 31, 1961, 1960, 1959 and 1958 would have been \$277,859,000, \$238,625,000, \$184,087,000, and \$137,254,000, respectively. Related net earnings from operations and earnings per common share for these periods would have been \$11,175,000, \$10,236,000, \$8,174,000, \$5,885,000, and \$2.35, \$2.15, \$1.88, \$1.40, respectively.

The Company's investments in unconsolidated subsidiaries are stated at cost plus equity in earnings since acquisition; its equity in earnings for the current year of \$331,000 is included in the Consolidated Statement of Earnings.

NOTE B—Long-term Liabilities

Long-term liabilities at July 31, 1962 consisted of the following:

Long-term debt:	
Notes payable to banks, due August 15, 1963, with interest currently at 4½%	\$ 4,200,000
Notes payable to insurance companies	6,298,175
Non-interest bearing note payable in annual instalments to September 2, 1964 with \$330,000 due September 2, 1962, and increasing \$100,000 a year thereafter	1,290,000
Note payable in quarterly instalments to June 1, 1975 with interest at 3%	2,278,867
Other	<u>1,805,000</u>
	15,872,042
Less current portion	1,148,339
	14,723,703
Deferred federal and foreign taxes on income	3,888,000
	<u>\$18,611,703</u>

Notes payable to insurance companies consisted of \$3,050,000 due May 1, 1971, payable at the rate of \$325,000 annually with interest at 3½%; \$1,348,175 due February 1, 1975, payable at the rate of \$37,485 quarterly including interest at 5½%; and \$1,900,000 due January 1, 1977, payable at the rate of \$100,000 annually with interest at 5%.

Under the various borrowing agreements the Company has agreed to maintain certain ratios of assets to debt and stockholders' equity to debt. The Company is in compliance with the terms of the agreements.

NOTE C—Convertible Subordinated Debentures

Convertible subordinated debentures at July 31, 1962 were as follows:

3½% due April 1, 1987, issued 1962	\$50,748,200
5¼% due December 1, 1974, issued 1959	4,105,000
4¾% due June 1, 1974, issued 1959	4,700,000
5% due September 1, 1965, issued 1955	<u>619,000</u>
	<u>\$60,172,200</u>

The debentures are convertible into common stock of the Company at conversion prices as follows: 3½% debentures—\$160 per share until April 1, 1972, \$170 per share until April 1, 1982, \$180 per share thereafter; 5¼% debentures—\$80 per share; 4¾% debentures—\$65 per share; 5% debentures—\$6.27 per share. These conversion prices are subject to antidilution provisions.

The Company has agreed to retire annually principal amount of debentures as follows: 3½% debentures—\$2,000,000 commencing April 1, 1972; 5¼% debentures—\$600,000 commencing December 1, 1965; 4¾% debentures—\$470,000 commencing June 1, 1965; 5% debentures—\$150,000 commencing September 1, 1958. Required annual retirements of the 5¼% debentures and the 5% debentures have been met through December 1, 1967 and September 1, 1962, respectively, by conversions of debentures into common stock.

The debentures are subordinated to all existing debt and future debt of the Company with limited exceptions. The Company is in compliance with the terms of the debentures.

NOTE D—Stockholders' Equity

The voting preferred stock is callable at 104 plus unpaid dividends, declining hereafter to par over four years. It is convertible into common stock at \$27.50 a common share to 1964 and is subject to antidilution provisions.

At July 31, 1962, common shares have been reserved for:

	<u>Shares</u>
Conversion of debentures	539,552
Conversion of preferred stock	46,564
	<u>586,116</u>

In addition, under certain acquisition agreements shares are to be issued as additional consideration for companies acquired based upon their earnings subsequent to acquisition.

Under terms of the Company's notes payable to banks, earnings retained in the business of approximately \$27,500,000 are available for cash dividends on common stock at July 31, 1962.

On August 15, 1962 the Company distributed the additional shares of its common stock required to effect a two-for-one stock split to holders of its common stock of record on July 31, 1962. Also on the same date, the Board of Directors of the Company declared a common stock dividend of 2½% payable December 17, 1962 to holders of record of such common stock at the close of business December 3, 1962. These transactions have not been reflected in the financial statements.

NOTE E—Contingent Liabilities

Approximately 37% of the Company's sales for the current year are subject to the Renegotiation Act of 1951. Adequate provision has been made for possible refunds.

Annual rentals under long-term leases are approximately \$2,500,000 plus property taxes and insurance in some instances.

four years, this tube will make it possible for aircraft and missiles to transmit, with a single tube, upper-microwave radio-frequency signals at powers previously limited to large ground installations.

Technical advances were also made in the field of display tubes. Delivery of the printing unit for a document retrieval system developed by another company brought into focus the great military and commercial potential for the advanced display devices originating in the Electron Tube division.

Development of new "MICROPIX"® cathode ray tubes during the year met a critical military need for high resolution displays, including successful performance with photographic equipment to record vital radar information aboard long range bombers.

FIBER OPTIC TUBES

First production of a practical fiber optic cathode ray tube was also achieved by the company during the year. Called "PIPIX," these tubes make possible electronic exposure of instant dry process film.

Other new products introduced during the year were two portable power sources generating microwave energy for use in research, testing, and driving higher-power amplifiers; a vacuum switch tube for high power use; an advanced ceramic-metal high-temperature pulse magnetron; and a rugged, compact, traveling wave tube for extreme airborne and

One of the most famous of the great spires of Canada's Houses of Parliament is the Peace Tower, commemorating the peace of 1918. The Peace Tower also contains a Memorial Chamber in honor of the 60,000 Canadians who gave their lives during World War I. Since the birth of the Canadian nation, her valor and unstinting dedication to liberty have been among the mainstays of human freedom everywhere. Many manufacturing operations of Litton Industries are currently integrated into the Canadian economy and defense effort. Among them are: Litton Systems (Canada) Ltd.; Cole Steel International Ltd.; A. Kimball, Ltd.; Canadian Aero Service, Ltd. and Western Geophysical Company of Canada, Ltd.

missile environments.

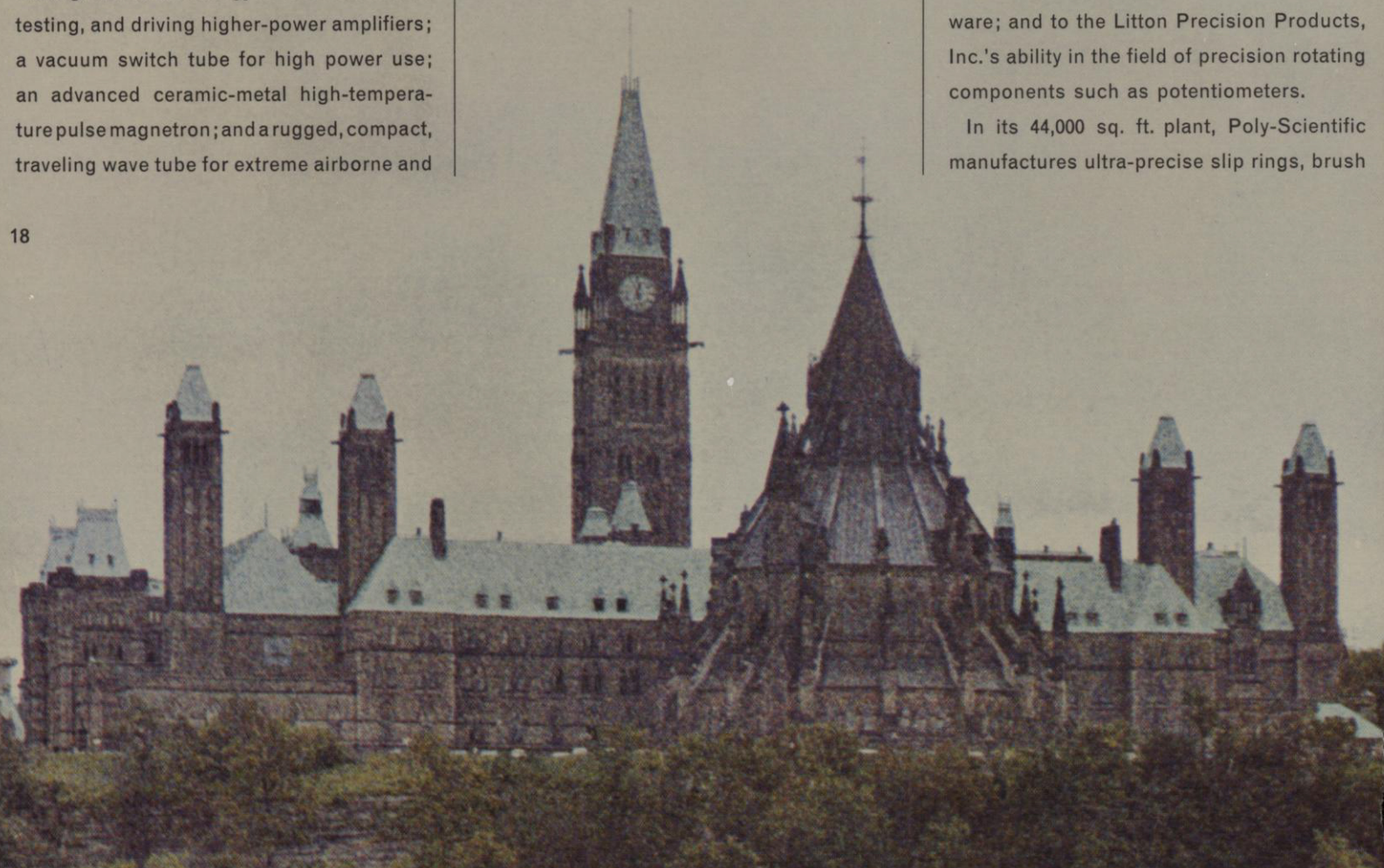
Elliott-Litton, Ltd., a joint venture with Elliott Automation, Ltd., in Great Britain, this year introduced four new tubes in the millimeter wave range which operate at new, higher frequencies. Such frequencies may well prove to be commonplace in the future.

Elliott-Litton products are marketed in North America by the Electron Tube division. The division also is marketing millimeter-wave magnetrons from Lignes Telegraphiques et Telephoniques of France.

COMPONENT ADDITION

The year-end addition of Poly-Scientific Corporation provided an ideal complement to the company's activities in the field of precision components. Poly-Scientific, which has its headquarters, laboratories and precision production facilities in Blacksburg, Va., adds important capabilities to the Components Group—to Airtron's experience in the development and manufacture of microwave transmission components; to Triad Transformer and Utrad divisions' magnetic component reputation; to U. S. Engineering Co.'s capacity for the manufacture of circuit boards and electronic hardware; and to the Litton Precision Products, Inc.'s ability in the field of precision rotating components such as potentiometers.

In its 44,000 sq. ft. plant, Poly-Scientific manufactures ultra-precise slip rings, brush



block assemblies, commutators and stepping switches for navigation systems such as in the Polaris and Skybolt missiles.

For the communications system carried by the Telstar satellite launched in the spring of 1962, Airtron supplied the world's eight largest yttrium iron garnet crystals, emphasizing Airtron's unique capabilities to "grow" crystals of exceptional size as a result of its long-term program in this field. Crystals of this type made possible the development of a unique microwave limiter. No other company now is known to have the conjunction of knowledge, skills, and equipment necessary to produce such materials, which are indispensable to space age communications.

Consistent with the certain need for such materials in future communications equipment, Airtron doubled its laboratory facilities for research and production of solid-state materials. Products resulting from this stepped up activity include rapid, electronically tunable, narrowband filters for microwave electronic countermeasures equipment; and waveguide switches for very high-power, high-temperature operation. Work is also under way on ruby crystals for lasers, and zinc oxide crystals for piezoelectric devices such as microwave delay lines for communication and computer systems.

New ferrite devices now being delivered in quantity include a very high power broad-

band isolator for airborne electronic countermeasures systems; an isolator that, although extremely compact, improves the performance of ultra-high-frequency communication systems having three million watts of peak power; multiplexing and amplifying equipment for new tropospheric scatter communication systems; and a parametric amplifier that effectively doubles the range of radar.

Microwave products of more conventional materials developed during the year include a high-power antenna coupler for receiver and transmitter systems; a compact, low-cost transponder to meet FAA requirements in air traffic control; and waveguides for the newest radar systems.

LAMINATED CIRCUITS

By the end of the year, U.S. Engineering Co. had received its first production orders for laminated etched circuits. Two different types in production for Midas satellites have 10 layers of etched circuits laminated together into a homogeneous, compact unit that greatly reduces the size and weight normally required. Multi-layered circuits are also being delivered for the Titan III and Minuteman missiles. USECO also received orders for conventional printed circuits for the Polaris fire control computer and other uses.

Another division in the Components Group, Triad Transformer Corporation, had the highest sales and backlog in its history. Cre-

ation of a new Triad Distributor division, specializing in marketing of catalog items manufactured by both Triad and Utrad, and the shifting of production of some of these items to Utrad, left Triad with more latitude to develop and market military and industrial magnetic components. As a result, at the end of the year, Triad and Utrad had across-the-board record high sales of catalog transformers, and of military and industrial magnetic components. Triad and Utrad also developed 11 new fine-wire magnetic components utilizing latest subminiature techniques.

POTENTIOMETER DEMAND

Military and industrial demands for Litton's ultra-high precision potentiometers continued to increase during the year, contributing substantially to the Litton Precision Products, Inc., division's dramatic increase in sales. Litton potentiometers play significant roles in today's space and defense programs. They operate in virtually every military aircraft, missile, satellite or space vehicle used operationally, or in their ground support equipment. Litton potentiometers are also used in airborne communication and navigation systems, ground tracking stations throughout the world, anti-submarine warfare systems, fire control systems and simulators for military personnel training. Our potentiometers also are being used by the Atomic Energy Commission and in nuclear



power plants. In addition to the extensive domestic applications for these precision components, exports doubled over the previous fiscal year.

MEDICAL ELECTRONICS

Notable advances also were made by the Fritz Hellige division in Freiburg, Germany, with its expanding line of medical electronics products and contributions to our inertial navigation system program in Europe.

These activities resulted in the expansion of the division's original facilities and in the erection of new buildings totaling 80,000 sq. ft. This new facility will house the most modern electronic production equipment and clean room in Europe.

In commercial products, Hellige introduced a highly accurate and smaller electrocardiograph to the European medical profession.

AERIAL SURVEY ACTIVITIES

The Aero Service division, which joined our company late in calendar 1961, received contracts during the year that broadened its work in photogrammetry and spread its activities to many new areas of the free world.

In Chile, Aero heads aerial survey companies that are mapping earthquake-damaged cities, studying land use and land capabilities and searching for new mineral resources under a multi-million-dollar budget.

In Africa, a 28,000-square-mile survey will be providing much needed maps for a newly

developing nation. The maps aid in locating dam sites, developing agriculture and industry, constructing new roads, and exploring for oil and minerals as part of a continuing program. In Egypt and Turkey, aerial surveys are producing significant information on ground water and mineral resources, and in Jordan, new topographic maps.

In Canada, a 600,000-mile aeromagnetic survey over the Canadian Shield, covering parts of Manitoba, Saskatchewan and Quebec, is under way by Canadian Aero Service. The Federal Government and Provincial Governments are joining in this multi-million-dollar program to map resources.

In Australia, major exploration for new oil resources is being advanced by Aero services through aeromagnetic reconnaissance.

In the field of space communications, Aero established, to within the thickness of a pencil line, the precise location of the Telstar antenna in relation to existing U.S. geodetic stations. A location error of 1/50th of an inch in selecting the exact position of the 160-foot-tall radome and antenna could have resulted in complete inability to track the Telstar satellite in its orbit 3,000 miles away.

Aero also is playing an expanding role in producing simulator input materials. Typical is a 3-D terrain/target model, constructed exactly to scale, for use in aircraft weapon systems simulators. The model enables the

radar-simulation of flight problems with realism and precise detail.

Similarly, Aero is designing and producing simulation inputs for the Air Force's T-10 universal radar simulator and for NATO's F-104G simulator program.

Aero's leading position in this growing simulator field is based on its long-existent technologies of photogrammetry and geodesy, and its unique experience in precision photography and graphic presentation of data gathered from radar and other sensors.

During the last fiscal year, Aero introduced its automated coordinatograph, an efficient device which does line plotting work to the highest degree of accuracy of any such device available today. It eliminates hours of manual plotting time by automatically converting design data from tape or punched cards to graphic form. Its uses include printed circuits design, precision machine components design, aircraft and automotive lofting, optical grinding and machining, layouts, and charting complex flow patterns.

MARINE SEISMIC SURVEYS

During the year, Western Geophysical Company expanded and consolidated its leadership in marine seismic exploration for oil. Operating in both hemispheres, Western's seismic ships logged 44,060 miles of surveying, nearly twice that of the nearest competitor.

Western expanded operations in Mauri-



tania, Africa, and Qatar. In North America, the operations included new explorations in 12 states, the Gulf of Mexico and in the Atlantic off the New Jersey coast. At the end of the fiscal year, Western exploration teams were in nine countries of the free world.

The development of new recording techniques and a system of multi-recorder magnetic tape components for processing and compositing seismic data enhanced Western's position in the field of marine geophysics.

For those areas on land where it is difficult to obtain clear results, Western has successfully tested the multiple recorder system, employing several tape transports. This system, utilizing five tape transports, is capable of compositing onto a single 24-trace tape the data from 243 drops of a three-ton weight. The system also achieves the "stacking" of repeated conventional seismic explosions. The purpose of compositing is to bring out the true reflections from subsurface formations in "poor" record areas by canceling the various "noises" resulting from geological conditions, traffic, interference or other extraneous causes. Western's new system has improved both the accuracy and the efficiency of production of composited cross sections of the earth. The work is done with automated precision.

Development of "programmed gain control," which permits precise relative cali-

*Four hundred years ago, in
Leyden, Dutch patriots fought one of
history's most valiant battles
for freedom. Under siege for six months,
and on the verge of starvation, they
sallied forth to cut their own dikes. The
resultant rising waters enabled
supply ships to reach the beleaguered city so
that the battle could continue until
Dutch freedom was won. ☞ In modern
history, too, the Dutch have
demonstrated their dedication to freedom,
and as members of the Common
Market, they are leading contributors to
Europe's economic health. Participating
in this contribution is our Monroe
Calculating Machine Company, which
maintains a major manufacturing
facility in Amsterdam.*

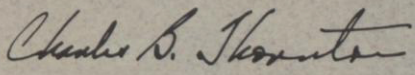
bration of recorded energy returning from formations in the earth, increased the accuracy and scope of information obtainable about subsurface formations.

At the year's end, Western was preparing to move crews to Pakistan, Australia, and Cabinda, West Africa, new areas for the company. In Australia, the survey will seek potential oil deposits through surveys conducted on both water and land.

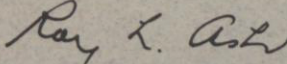
THE OUTLOOK

At year end, the outlook of all divisions was for continued, profitable growth. Technologies and capabilities were being expanded to meet the demands of our space age and its complexities, thus assuring Litton Industries a major role in the events to come. These facts, along with the vitality of the economic environment in which we function today throughout the world, enable us to view the future with confidence.

Sincerely yours,



Charles B. Thornton, Chief Executive Officer and Chairman of the Board of Directors



Roy L. Ash, President





One section of the Marine Tactical Data System built by the Data Systems division is loaded into an aircraft for airlifting.

Latest voice communication equipment in Marine Tactical Data System delivered by Data Systems division is compactly packaged in air-portable huts for mobility.



Precision adjustments to a marine compass for an ocean-going vessel are made at C. Plath, Hamburg, Germany.

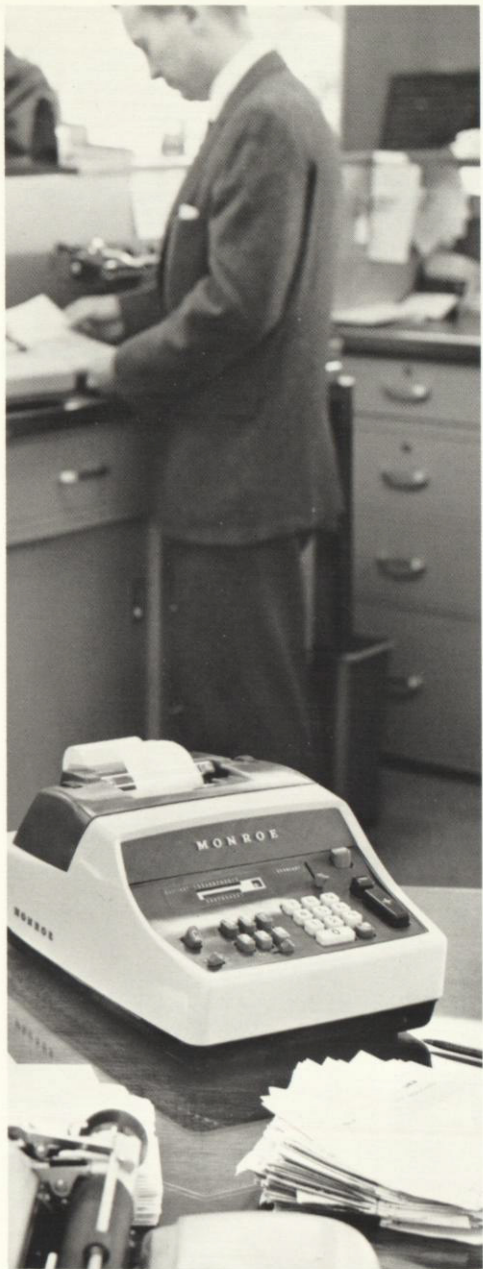
Explosive charges are set off by a Western Geophysical crew in marine seismic surveying.

Field engineers from the Guidance and Control Systems division, Woodland Hills, Calif., test an F-104G inertial navigation system.



Ingalls Shipbuilding yards and shops turn out cargo vessels, nuclear submarines and other vessels.

Electronic assemblers at Data Systems division's Van Nuys facility are working on subassemblies which will go into computers.



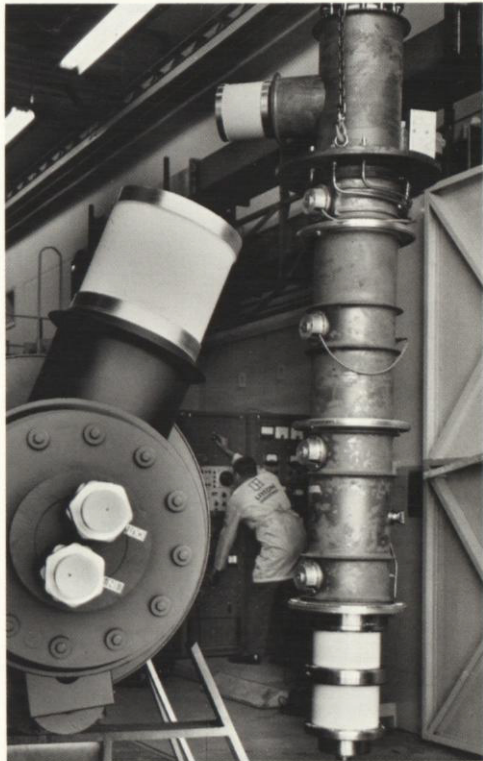
Monroe's new Mach 1.07 printing calculator, the world's fastest, is shown serving commerce in a typical setting.



Precision component of a marine compass is assembled by a technician at the C. Plath plant in Hamburg, Germany.

Antenna assemblies are among the electronic equipment produced at the Maryland division for military customers.

More than 250,000 machined parts for electronic equipment can be produced daily at U.S. Engineering Company facility in Van Nuys, California.



A controlled-environment room keeps dust or humidity from precision assemblies at Litton Systems' Salt Lake City plant.

High power klystrons for installation in the Ballistic Missile Early Warning System are produced by the Electron Tube division at San Carlos, California.



Newly produced Monroe|Sweda cash registers for world markets await delivery from plant in Stockholm.

Data is converted into engineering and planning maps by draftsmen at the Aero Service plant in Philadelphia.

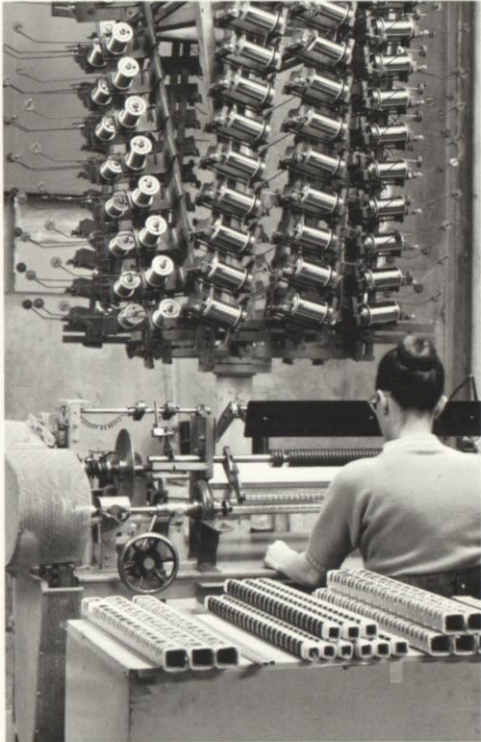
Electronic assemblers at the Data Systems division's plant in Van Nuys, California perform wiring operations on sections of computer assemblies.

Litton-Italia is producing inertial navigation subsystems for F-104G fighter aircraft produced in Europe.

Miles of wires interconnecting airborne computer systems are assembled at Guidance and Control Systems division.

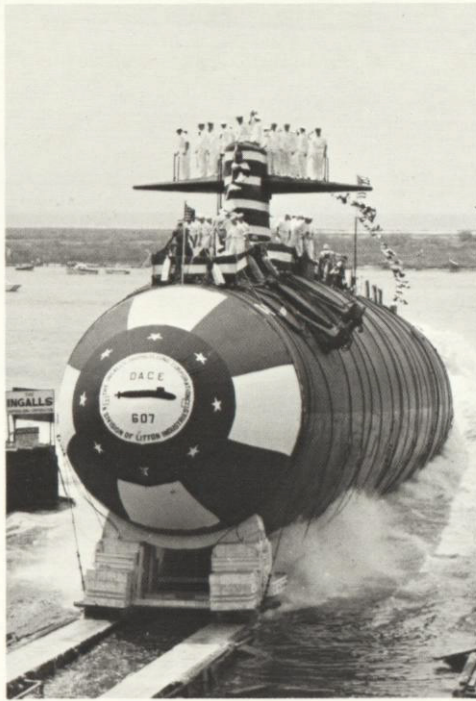
The Data Systems division's Marine Tactical Data System can be carried by helicopter to control air traffic over an amphibious assault.

Pre-delivery acceptance tests of Litton inertial navigation systems are conducted at company's Woodland Hills, California plant.



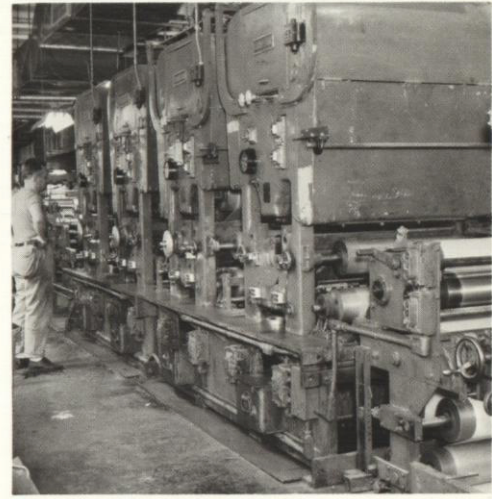
The Amsterdam plant of Monroe produces a quantity of business machines for customers throughout the world.

Machines developed for this purpose wind magnetic components at the Triad Transformer division, Venice, Calif.



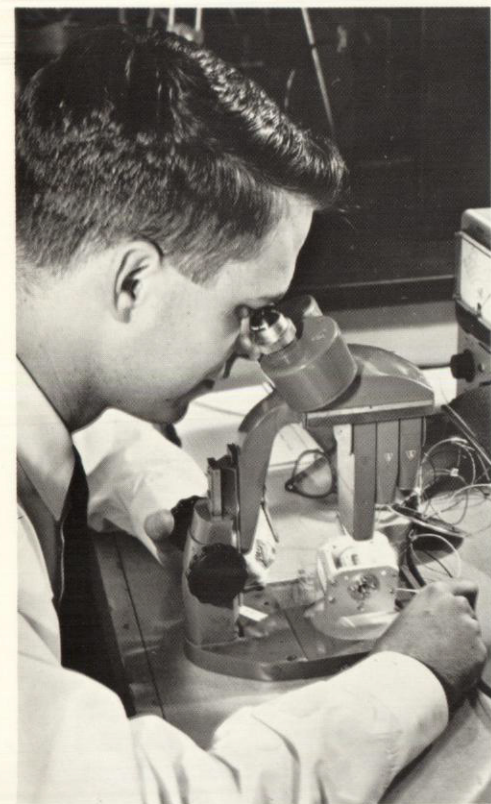
The Dace, fourth nuclear-powered sub built by the Ingalls Shipbuilding division, was launched at Pascagoula, Miss., Aug. 18, 1962.

New machine shop at the Salt Lake City plant of Litton Systems turns out precision inertial navigation components.



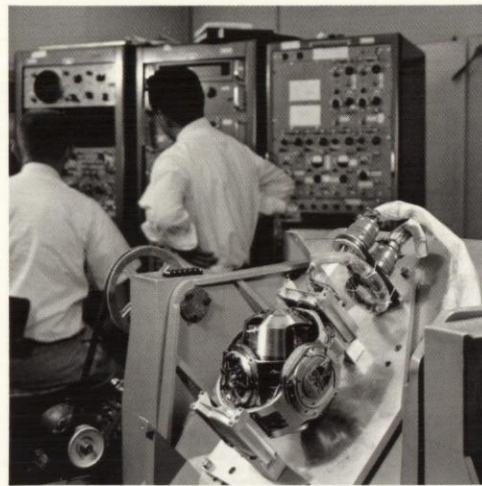
Four-color gravure press is among the unusual printing equipment in service at Eureka Specialty Printing division, Scranton, Pa.

A complex stereo plotter enables the Aero Service division to transform aerial photos into topographic maps.



Laboratory examination under microscopes is among the tests assuring Poly-Scientific products meet precise standards.

Huge Telstar tracking antenna was built with watch-like precision by newly acquired McKiernan-Terry division.



Each gyroscope produced by the company at Woodland Hills, Calif., is put through final meticulous balancing before test.

Stable platform undergoing test is a major subsystem of the company's Flight Data System for space navigation.

Data system from Litton Systems Data Systems division, Canoga Park, Calif., can be airlifted to any trouble spot in the world.



The Guidance and Control Systems division's new dust free area, among the finest in the world, makes it possible to increase substantially gyroscope production.

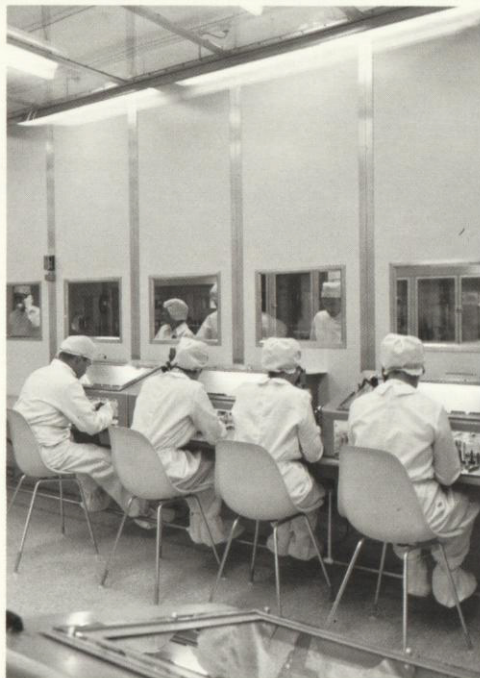
Traveling wave tubes are purged of air at a series of exhaust stations at the Electron Tube division plant, in San Carlos, Calif.



A completely equipped machine shop at the Bristol, Va., plant of Monroe supplies parts for business machines.

Ingalls Shipbuilding received a new contract to construct its seventh nuclear-powered attack submarine such as this.

Monroe|Sweda cash registers, which are known the world over, await shipment from Stockholm, Sweden, plant.



Carefully controlled conditions assure precision assembly of magnetrons at the Electron Tube division.

Communications equipment comprises one module of the Data Systems' Marine Corps Tactical Data System.



Electronic assemblers lay in and route hundreds of small wires in an electronic subassembly at the Data Systems division's facility at Van Nuys, Calif.

Machinists at Stockholm produce parts in quantity for Monroe|Sweda cash registers for use around the world.

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