LITTON INDUSTRIES ANNUAL REPORT 1966

# THE ANNUAL REPORT OF LITTON INDUSTRIES, INC.

*for the Fiscal Year Ended July 31, 1966*

**TABLE OF CONTENTS**



ALLAN NEVINS is one of America's most distinguished scholars, twice receiving the Pulitzer prize for his biographical works. He has long been an observer of the role of the corporation in the development of modern civilization. Nevins is now Senior Research Associate at the Huntington Library, San Marino, California.

To complement Nevins, ART KANE, one of the nation's outstanding photographic artists, has interpreted the theme visually. Kane's work has received his profession's highest recognition.

Litton Industries is pleased that they have accepted our invitation to write and illustrate the theme, "Managing Ideas," for our 1966 annual report.

COVER: *"The history of progress is a history of evolution of men's ideas." As the sun quickens seed and pollen, so the ideas we cultivate are part of that limitless realm man can never cease exploring. Man best attains the reward of a bountiful harvest by managing to productive fruition those ideas within and about him.*

## *Managing Ideas*

The history of progress is a history of evolution of men's ideas. At first, struggling humanity thought its scanty records a meaningless jumble, where blind fate ruled. Then men saw that their advancement rested upon ideas — the idea of the wheel, of the alphabet, of city-state organization—and that one idea led to other ideas in genetic procedure. They realized that history had a pattern, a meaning, and therefore hope. It was a story of progressive development under general laws, in which society possessed the attributes of a growing organism. In time, mankind accepted the concept of progress built on ever-new ideas, rejecting Rousseau's fancy that a golden age lay in the dim past and Spengler's picture of futile cycles terminating in decline and decay.

A few fundamental ideas, in each department of human activity, have been responsible for most of the world's progress. The basic religious conceptions, in all parts of the world and all ages, have been the same: submission to an infinite Spirit, adherence to precepts of justice, and acceptance of the Golden Rule. A disciple of Christ, a devotee of Buddha, a Mahometan, and an Israelite could all accept that creed. The rules of Greek art—simplicity, harmony, and elevation—are still the fundamental artistic rules, as well expressed in the Lincoln Memorial as in the Parthenon. The timeless ideas in politics from Pericles to Churchill have been those of liberty, tolerance, integrity and responsibility. In science the one essential is a fearless application of the idea of experiment by trial, error, and verification, built upon the accumulated knowledge of the past and an imaginative use of theory for the future.

Lord Bacon described the march of progress graphically. In his essay "Prometheus, or the State of Man," he wrote that ancient thinkers had credited the beginnings to the divine fire of ideas brought from heaven. By instituting races with flaming torches in honor of Prometheus, he added, the ancients had shown their understanding of the method by which progress must continue: "not from the swiftness and ability of any one inquirer, but from a succession." Competitive and cooperative investigation becomes ever more important. Some concepts are good, some bad, but in the end the best will win the race. The far-ramifying ideas of many men, evolved with what Bacon called "competition, emulation, and good fortune," will thus carry humanity to higher and higher levels. For, he wrote, "the discoveries of science spread and fly abroad in an instant, the communication of knowledge being like that of one candle with another, which lights up at once."

As faith in progress grows, we should bear in mind certain truths about ideas. One is that we owe honor not only to the investigators who *answer* great questions, but to the men with the courage to *ask* them. Some questions are unanswerable when first propounded. The Greeks could not solve many problems in government because their states were tiny, they had little industrialism, and as islands in a barbarian world their experience of internationalism was small. Nevertheless, they asked fundamental questions. They examined the nature of law, liberty, public opinion, democracy, justice with such free realistic minds that their treatises on these subjects stand unexcelled. Another truth is that the best ideas are interrelated on a worldwide scale. Science and politics by no means stand apart from each other. Various Anglo-American thinkers like Walter Bagehot and Woodrow Wilson have pointed out how strongly the Newtonian ideas of planetary motion, with checks and balances, affected 18th-century politics, including our own Constitution; and how naturally 19th-century statesmen accepted Darwinian ideas of the necessity of organic harmony in states as well as biology.

"It is not only in politics that ideas are important," Charles A. Beard once wrote. "They are regnant in every department of civilized life — in art, letters, economy, and social custom. One might almost say that people are civilized in proportion as they mingle ideas with their labors and inspirations." And the world now has special reason to hold its faith in progress based upon expanding ideas.

For the pace of recent advances has a swiftness that would once have seemed stupendous. As medievalism died, the desire of Western peoples for a brighter, freer, more prosperous life kindled a dynamic enterprise that could not be stayed. The Dutchman of the year 1600 who said, "Man cannot halt the wind but he can build windmills," stood at the beginning of the great modern march. Reforms in education threw off old classical and ecclesiastical trammels, and substituted practical aims geared to progress. A close alliance of science and technology carried Europe into the industrial revolution; the development of the American Dream opened fresh sources of wealth, enterprise, and ideas; and as all nations now watch astronauts explore planetary space and aquanauts plumb the depths of the seas, so all share in the elations of man's new powers of energy and mind.

The search for ideas is a never-ending adventure. Sometimes, as in Roman history, adventure has seemed richest in the field of politics and law. Sometimes, as in Elizabethan England, it has seemed most exciting in literature, or as in 18th-century Germany, in philosophy. Of late, not only in all Western lands but in Japan, science and its sister, technology, have dominated the scene. Here it is that men's thoughts seem freest, most alluring, and most likely to lead into realms full of novelty and wonder. Here industry, as dynamic partner of science and technology, supporting and guiding both, and bringing their cornucopias to the doors of mankind, sheds its oldtime aspect of the commonplace and materialistic; it becomes a means of touching the world's imagination, and giving perceptive men and women a broader, brighter view of the future of existence.

ALLAN NEVINS

*"The rules of Greek art—simplicity, harmony, and elevation . . ." represent timeless principles that measure any endeavor—social, political, or industrial.*

**TO OUR SHAREHOLDERS:**

The introduction to this 1966 Annual Report expressing the theme, "Managing Ideas," has dealt with the partnership of science, technology and industry as interdependent elements of modern civilization, supporting and guiding each other.This alliance has created the fast-moving and now enormous economic change of our times. In this change we see the dynamic thrust behind the march of humanity; we see it laying the foundations for continuous social betterment.

The partnership of the scientist, technologist, and industrialist is an equal partnership in the service of humanity. Each is indispensable. Industry has the unique capability to stimulate and convert the basic discoveries of science and the devices of the engineer into useful products. The people within industry feel the obligation to widen the range of goods they produce, to distribute them more equitably and to improve the life of mankind by an unending search for new benefits.

As we progress through the remaining third of the twentieth century, striking fundamental changes become evident in the structure of industry. It is seeking and developing organizational forms that lay emphasis upon creativity and adaptability. Old systems of management that fitted nineteenth century economics and enterprise are increasingly recognized as inadequate. The radical innovations that spring from science and invention, from the new world of space and the computer, from an endless array of fresh products of physics, chemistry and mechanics, demand directing qualities of foresight and resilience quite unlike many of the conventional practices that served the older world so well.

New concepts are being spawned, weighed and adopted—or rejected as fast as they appear; new ventures are being undertaken not in a single industrial field, but in a variety of fields, for science knits once-diverse enterprises together; resources need to be allocated with an eye to the incessant changes in all sectors of the economy. The day of the old business maxim of putting your eggs in one basket and watching that basket, is gone forever. The new twentieth century maxim is to anticipate that changing world—and to provide an accurate and timely response.

One objective of Litton is to maintain a viable organization that, without diminution of prudence, will be alertly responsive to the manifold developments of knowledge, business and society. It will avoid rigidity of ideas or methods; it will be pliable as science and invention are pliable. This organization pursues diversity not as an end in itself, but as a means of developing fresh scientific discoveries, new managerial ideas and new customer demands.

It will thus direct expert entrepreneurial talent to channels never before effectively explored, and apply capital to opportunities previously overlooked in both new and long-established fields. It does not aim so much at solving old problems alone, as at posing new problems and finding their answers.

One of the most imperative responsibilities of management is to identify and evaluate those fields and products which will become the basis of corporate growth five and ten years hence. The keynote to con-

verting the flow of opportunities into commercial success is to engender an organization responsive to change.

Deliberately we have chosen to concentrate upon innovation and versatility whether it be in products, services, marketing methods, or the use of financial resources. We believe that the spark of creativity and the incisive force of inspiration are found in talented individuals, and that these individuals should be provided with special opportunities and encouragement. With minds open to the fact of unceasing and radical change, they will do most for Litton and society when they are given responsibility and motivated to exercise their ingenuity in developing new ideas.

The Litton effort is thus structured to provide multiple points of enterprise; not just one center of initiative and creativity, with a static type of organizational chart that tends to limit thought, action and responsibility.

Within an atmosphere of freedom and many-sided enterprise, the people of Litton have conceived, developed, and distributed more new products and services in 1966 than in any previous year. The appeal of these new commodities to the world marketplace, alongside the continued demand for products brought forward earlier, is reflected in Litton's operating results for the year. And what has been achieved in the past promises new levels of performance for the future; for this achievement gives emphasis to resourcefulness, and a special quality of procreative planning—in short, imagination.

For the fiscal year ended July 31, 1966, an increase of 39 per cent in earnings to $55,600,000 extended Litton's past ten-year record in achieving one of the highest continuous growth rates of any industrial corporation in the United States. Sales for the year were $1,172,000,000, a 28 per cent increase above $915,000,000 in 1965. Today's revenues are derived almost equally from Litton's three major areas of activities—business equipment, defense and space and industrial products and services, all of which set new records in sales and profits. Litton is now operating 188 plants in 31 states and 24 countries with sales and service facilities serving customers across the United States and in 95 countries of the free world.

Shortly after the close of the fiscal year, the Litton board of directors voted a 2½ per cent common stock dividend. Litton's most recent addition to its capital structure is its Convertible Preference Stock which was made available to Litton shareholders on a voluntary exchange basis during the third quarter. Eighty-eight per cent of the common shares eligible and 80 per cent of the Series A $3 Cumulative Preferred Stock outstanding were exchanged for the new Preference Stock.

In managing ideas we have only begun to realize the potential available to Litton as a multi-national organization of 76,000 employees and more than 100,000 shareowners. With the creativity and determination of the people of Litton, combined with the financial resources invested on your behalf, we shall continue to relate even more vigorously our skills, our technologies and our products to the new and growing markets of the future.

Sincerely yours,

Charles B. Thornton,
Chairman of the Board of Directors

Roy L. Ash, President

*One-half of the advanced products now marketed by Litton Industries did not exist five years ago. Such a phenomenon accentuates vividly the impact of the rapid pace of technology upon modern industry. It also emphasizes the challenge facing management today—managing ideas to be certain that only the best are developed to productive results. In 1966 Litton continued to participate fully in this technological revolution by introducing more new products and services than in any year in its history. On the following pages are described such representative achievements.*

Litton's business equipment products and services experienced a record year in 1966, registering significant sales and profit increases. This was accomplished by concentration upon developing new and improved products and enlarging our multi-national marketing organization. The extensive Litton network for marketing these business products and services includes more than 600 company-owned branches, over 22,000 general dealers, and 14,000 full-time employees engaged in sales throughout the free world. We now serve customers in the United States and in 95 other nations. The continued strong customer demand for our business equipment products and services required the expansion of manufacturing facilities and acceleration of production.

Among the many new products, the Royfax 7 was especially important because it marked Litton's entrance into the growing copying machine market. Introduced in the second half of fiscal 1966, the Royfax 7 began immediately to produce significant revenues. Simplified design and extensive field testing have resulted in exceptional Royfax 7 reliability and customer acceptance, an advantage already proven by repeat orders. A distinctive marketing feature contributing to the sales of this new product is its metering system which permits the customer to pay only for the size and number of copies actually made. He is not required to purchase or pay rent for the machine itself. An additional innovation is the automatic ability of the Royfax 7 to reproduce multiple copies of originals as large as 11 x 17 inches through simple dial setting by the operator. We expect the highly reliable Royfax 7 to make an increasing penetration in the dynamic copying machine market now expanding by 20 per cent a year.

To meet a portion of Royfax 7 paper needs, we have added a new copying paper to augment our broad line of Fitchburg paper products. Increased sales have resulted from specially designed Fitchburg papers for the accelerating demands of the high volume pharmaceutical and consumer-industrial photographic fields.

EPIC 3000 INTRODUCED

To broaden further the desktop electronic calculator market, Litton introduced the new Monroe Epic 3000, specifically designed for more complex mathematical problem-solving needs of the scientific community. With triple the learning capability of the Epic 2000, the Epic 3000 solves lengthy, intricate problems formulated by scientists, engineers, mathematicians and statisticians. The Epic 3000 is the only electronic printing calculator in its price range capable of solving complex quadratic equations, a task usually requiring a computer. When the operator enters all the known numbers in the problem, the Epic 3000 instantly prints out the answer. The initial response from the scientific community indicates that the Epic 3000 will repeat the 2000's sales success.

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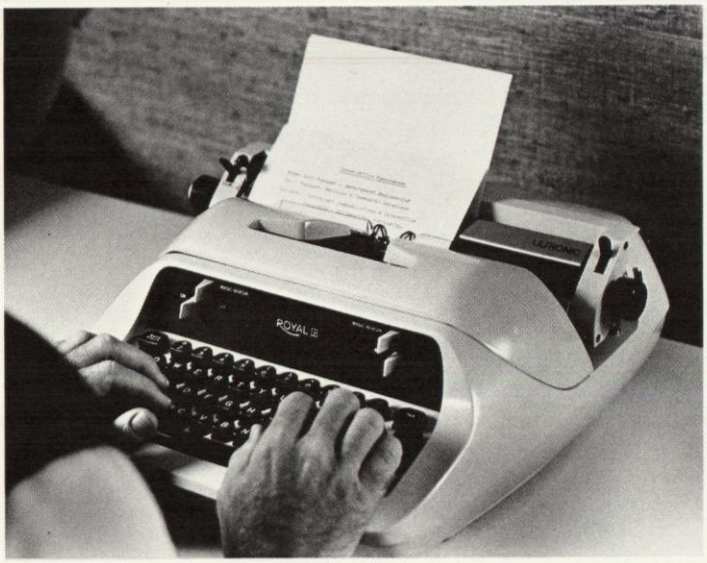
**a** Royfax 7 Copier

**b** PC 1421 Desktop Calculator

**c** Advanced Epic 3000 Electronic Printing Calculator

**a**




**b**


**c**


**a** Ultronic Personal Electric

**b** Sweda Mark II System

**c** Royal 660 Office Electric

Growing sales of the Monroe Epic 2000 electronic printing calculator exceeded expectations in 1966, its first full year on the market. Many deliveries of this technologically advanced electronic printing calculator influenced additional orders. This resulted from customer satisfaction with its demonstrated capability to reduce complex mathematical operations to simple adding machine routines. Brought to the market in 1965, the Epic 2000 possesses programmability, or the ability to learn, and prints out results. For many types of repetitive calculating tasks, the machine operates unattended, once the program is initiated. Where problems involve variables, the operator merely enters the additional figures. No control keys are used since the Epic 2000's memory system automatically remembers the computing program.

The record sales performance of Litton's entire printing calculator line substantially increased its share of the world market, led by the popular Monroe PC 1421 electromechanical printing calculator. It was introduced in the European market early in 1966, in Japan and Australia this spring and to other areas of the Far East during the summer. The PC 1421 has the capability to deliver answers faster than competitive calculators because the operator can enter data while the machine is still operating.

## CALCULATOR PRODUCTION EXPANDS

Heavy demand continued for the Monroe Mach 1.07 calculator, the only model in its price range which multiplies at the high cycling speeds of the most expensive units. Mach 1.07 calculator manufacturing was nearly doubled at the Amsterdam facility.

Late in the year Litton introduced a new Monroe office printing multiplier. Offering simplified automatic multiplication, this printing multiplier is expected to replace many machines which do not have this widely demanded multiplying capability.

As the demand for typewriters reached a new peak, the varied advantages of Royal typewriters attracted many new customers in the office and home. Our advanced technology applied to design and production of the machines resulted in the sale of more Royal office electric, standard and portable typewriters than in any previous comparable period. Reflecting the intensive concentration on new product development were six new typewriters introduced in the fiscal year, an accomplishment which gives Royal the broadest typewriter line in the industry.

## ROYAL 660 ELECTRIC

Our newest typewriter, the Royal 660 office electric, incorporates a wealth of technological design data based on studies conducted by Royal's reliability laboratory—the largest in the industry for human engineering research. Such research produced the 660's innovative keyboard design and automatic features for maximum typist efficiency and comfort. The new keyboard concept features larger, contoured keys which increase typing speed and improve typing rhythm, while reducing fatigue and error. Providing more automatic functions than any electric typewriter in its range, the 660 offers optimum ease of operation. The machine permits a lighter activating pressure than any competing model and has a keyboard that adapts to the individual typist's touch. To insure quiet operation so essential to an efficient office environment, a noise-free drive system and floating mount were designed especially for the new 660 office electric machine.

In addition, Royal entered the personal electric typewriter market in 1966 with its Ultronic model—the first fully electric machine priced under $200. Tabulation of early

"As faith in progress grows, we should bear in mind certain truths about ideas . . . Some concepts are good, some bad, but in the end the best will win the race." As Free Men, we dedicate ourselves to the task of managing ideas to gain a secure world where our children and their children after them may pursue responsible, fruitful lives.

sales indicates that approximately 60 per cent of the Ultronic machines are bought for the home and 40 per cent for business use. A major Ultronic feature is an electric carriage return which eliminates 75 per cent of the physical effort expended by a typist.

For other office needs, Royal introduced the 440 and the Filetape Royaltyper automatic machine. The 440 model, designed to increase Royal's lead in the manual office typewriter market, has many features formerly available only on electric machines. Royal's three new portable models, the Royalite, the Lark and the Custom, are intended to meet the demands of this rapidly growing segment of the typewriter market.

A new Royal venture was entry into the low-price, electric adding machine market. Designed for both home and office use, the line includes three, ten-key models selling in the $140-$190 price range.

## DATAREGISTER MARKET EXPANDS

An outstanding performance in 1966 was achieved by Litton's Sweda Dataregister, which continued to expand its share of the world's sales control register market. While speeding checkout and reducing operator fatigue, the Dataregister can automatically produce figures and totals for up to 37 classifications of merchandise and management information—more than any competing model. Successful marketing campaigns resulted in increased Dataregister sales to medium and small businesses, in addition to significant gains among major retailers. One such marketing program stimulated an 87 per cent Dataregister sales gain in the major chain store field alone.

In addition to the existing Dataregister line, introduction of more advanced models effected favorable retail customer acceptance. One such new Dataregister series was designed to increase the efficiency of



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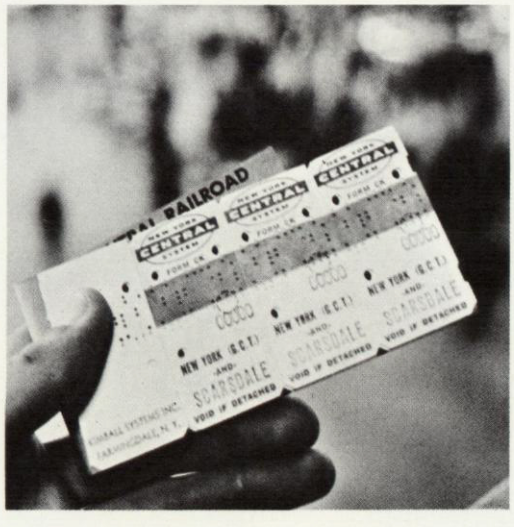


**a** High-Speed Tag Reader

**b** Kimball Data Tag

**c** Sweda 2700 Dataregister


supermarket checkout operations. These new machines permit supermarkets to process more customers in a given time period by means of a full range of automatic features. They include such time-saving advantages as automatic change computation, itemizing of taxable and non-taxable purchases and automatic totaling of refunds.

Another new series of Sweda sales control registers is designed with pre-set price keys for those retail and service establishments which charge a few standard prices. Each customer transaction can be greatly simplified by depressing a single key for the most frequently used prices.

MARK II SYSTEM

Still another product accelerating the record sales of Sweda sales registers is its new accounts receivable system which includes printing of monthly invoices ready for mailing to customers. Bringing together sales control registers and electronic data processing techniques, the Mark II offers the benefits of automation to all retailers regardless of size. The system enables thousands of small stores to offer efficient charge account services to customers at a competitive cost, while concurrently providing the retailer with the analytical data essential for profitable management. A Sweda Mark II sales register punches a paper tape with all information necessary for accounting of sales, receivables, installment payments and lay-away accounts. These punched tapes are then transmitted to a Litton Automated Business Services' data processing center where the monthly statement is completed for the customer mailing.

Among Litton's numerous advances in serving the retailing industry was the Kimball Source Marking program. Source marking is the concept which permits manufacturers to affix punch-marked inventory

control tags to goods on the production line. It eliminates the need for the retailer to perform costly hand ticketing in his store. Since a non-uniform format has previously prevented many manufacturers from adopting source marking, Litton increased Kimball sales by establishing simplified, widely accepted national standards and coding matrices for punch-marked tags.

Under the Litton system, coded tags carry inventory control data on each item. After the retailer sells the merchandise, the collected tags are relayed to a Litton Automated Business Services' Center where they are recorded by electronic data processing equipment. The data is converted into comprehensive sales information and related analysis reports which help the retailer do a better job of managing his business.

Greatly increasing the processing speed of the coded tags is a new Litton machine, the Krome, which converts the data to magnetic tape which in turn is fed into a computer. Through the medium of Krome and its magnetic tape output, the data on 18,000 tags can be read and recorded by the computer in one minute. Krome's high-speed performance makes possible a significant time saving over previous equipment.

WIDE McBEE LINE

For application to businesses of all sizes, Litton's McBee line offers data processing systems—including design, production and installation—of varying complexity. Major McBee markets are manufacturing operations, hospitals and schools. The equipment gathers information needed by the customer, records it on cards for compilation, and, if desired, generates by-product tapes. The tapes may be fed to Litton Service Center computers, customer-owned or commercial data processing operations to produce even more extensive statistical analyses.



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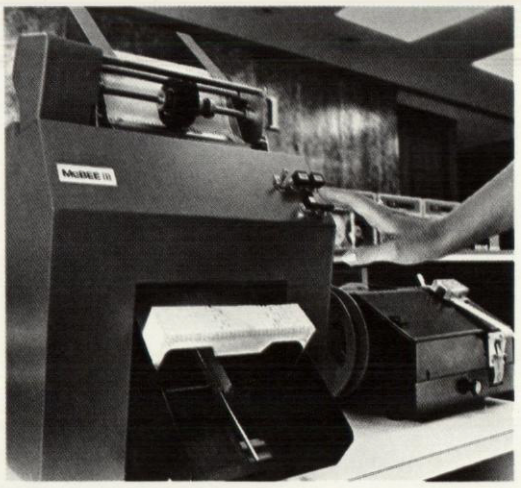

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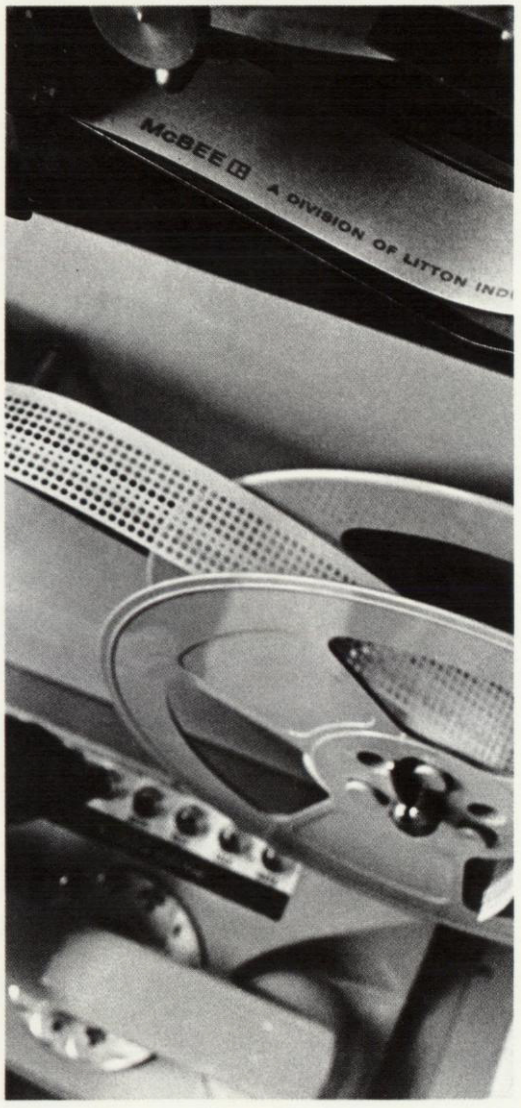


**a** Card-Tape Converter

**b** Business Equipment Automation Technology

**c** Epic 2000 Electronic Printing Calculator

Recent product developments serve to automate the basic McBee Keysort Card unit to acquire data totals in a shorter time. For example, the new card-to-tape unit automatically converts punched-card data to magnetic-tape data for processing by computers. A new McBee card processor, to be introduced in 1967, offers expanded capabilities of memory storage and computational functions. This processor reads the cards, evaluates and quantifies the information, then records the result on the same card. Added features of the new unit are a printout record and punched-tape output.

RETAILING DESIGN

Another Litton service to the retailing market is the design of entire retail operations to solve specific sales problems. Our Streater division evaluates the human factors affecting store layout and merchandise display, then develops the most productive sales environment incorporating its comprehensive line of store equipment.

During 1966 we broadened these retail activities to include the design and manufacture of refrigerated display and merchandising units. Our McCray line offers complementary refrigeration capability to a market comprising 40 per cent of the total cost of supermarket interior installations. Refrigeration represents the fastest-growing segment in supermarket construction.

Litton's Advance Data Systems equipment stands as a world leader in another rapidly developing field, automated revenue control. Among our many achievements in this field was installation of an automatic system in the first five of a total of 49 stations of the Illinois Central Railroad commuter service in Chicago. This new system is a major efficiency improvement in public transportation. The Litton system replaces the time-consuming, man-

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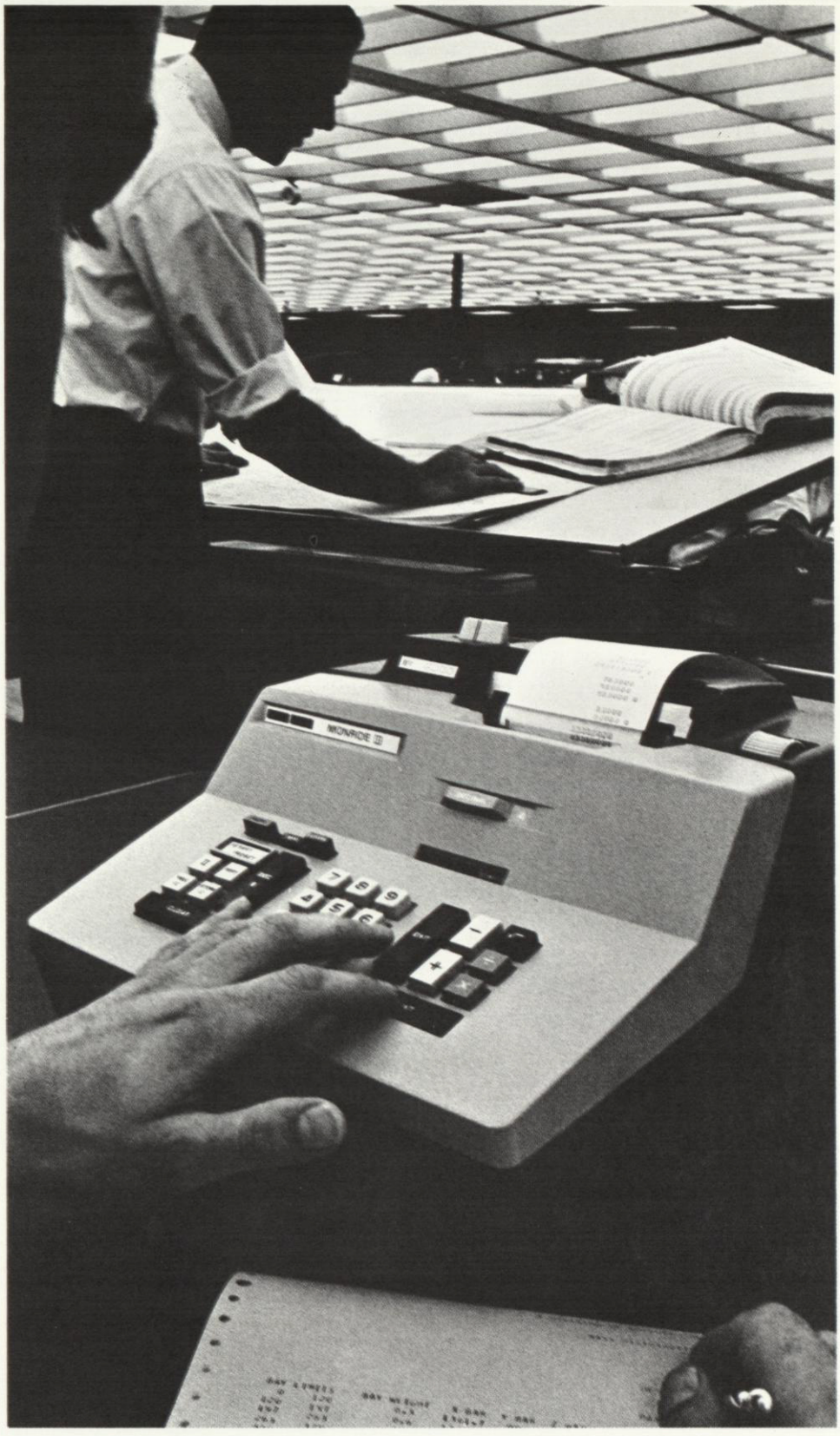

ual collection of money and tickets by substituting magnetically coded commuter tickets and computer-controlled passenger gates. In London, the division has adapted the automatic revenue control system to new single-fare "standee" buses.

Our Eureka-Carlisle operation expanded facilities for quantity printing of magnetically encoded checks and other commercial forms for financial institutions, retailers and other businesses. Large, five-color presses for increased speed, versatility and economy were installed in two Eureka-Carlisle plants. Already the world's largest producer of trading stamps, we received a contract from the largest stamp company in Japan to supply its annual requirements.

In other system developments, the Datalog MC 4000 ultra-high-speed printer nearly doubled its sales in the second half of 1966. This solid-state, cathode ray tube, fiber optic printer is reaching many new customers for computer on-line printout. For customers who require even higher speed performance, we introduced the Datalog MC 8800 shortly after the close of the fiscal year. The new printer's high speed and reliability won praise from many users during testing. The MC 8800 prints 88 characters per line at the rate of 100 lines per second, or over 500,000 characters per minute.

## BUSINESS EQUIPMENT CENTERS

Implementing Litton's innovative concept in marketing business machines, office supplies and furnishings at a single location, the company inaugurated its Business Equipment Centers. The initial Center was established in Springfield, Massachusetts and another was opened at Anaheim, California. A nation-wide network of these Centers is planned, each combining under one roof many of the varied products and services of our business equipment divisions. Representing a totally new concept in the business equipment industry, Litton's Centers mark an additional step in the company's goal of emphasizing equally imaginative marketing techniques with research and development of advanced products.

Among the products sold by the Centers are Litton's office furnishings lines, which continue to experience increasing demand. Our new Crestwood Series further expands the quality wood furniture line of desks, tables, credenzas and modular components, supplementing Cole steel office equipment.

## OFFICE FURNISHING LINES

Related to progress of the Centers, Litton continued the expansion of its retail and industrial office supply outlets strategically located throughout the nation. These broadened activities now include 16 outlets covering four key marketing areas—the Northeast, Mid-Atlantic, South and Far West.

Our "Order-Mation" service brings the benefits of automated inventory control to customers of our office supply centers. Utilizing "Order-Mation" techniques and inventory control, stationery and related products are promptly supplied, warehousing costs are eliminated and the inventory level of office supplies is reduced. A unique type of service makes "Order-Mation" particularly attractive to the customer—he can obtain rapid service by placing orders via automated data-phone transmission facilities which utilize either coded tape, cards or a computer.

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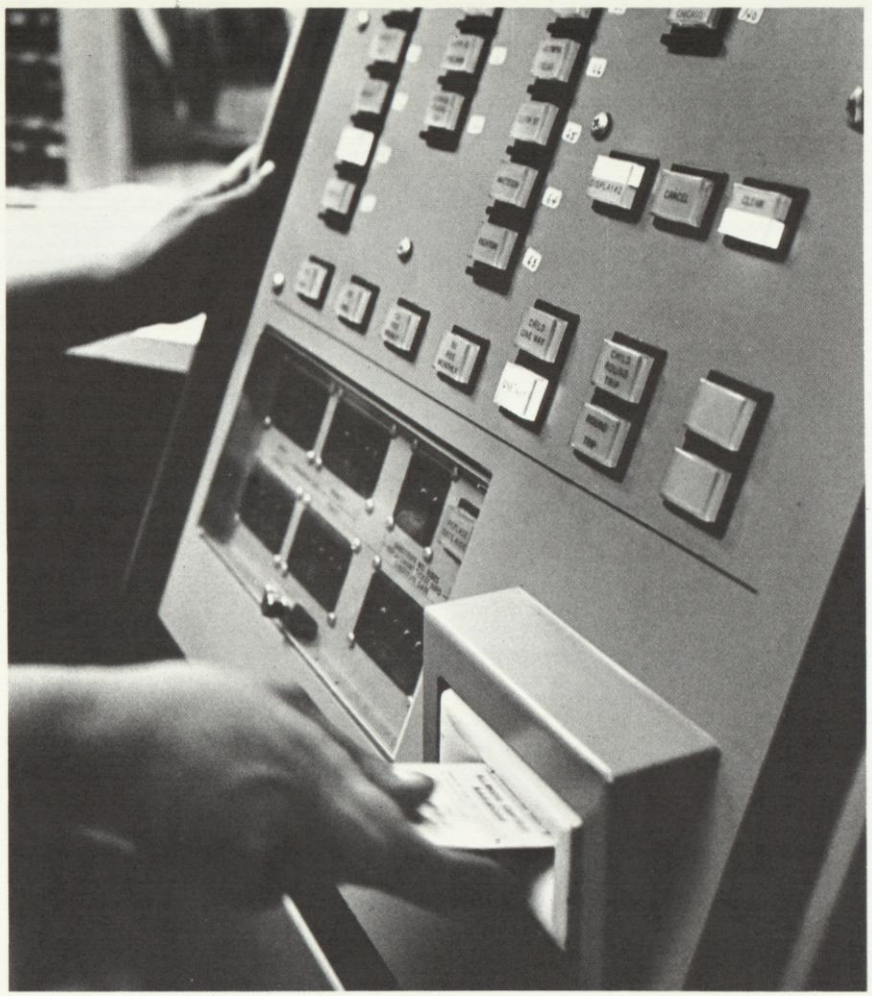

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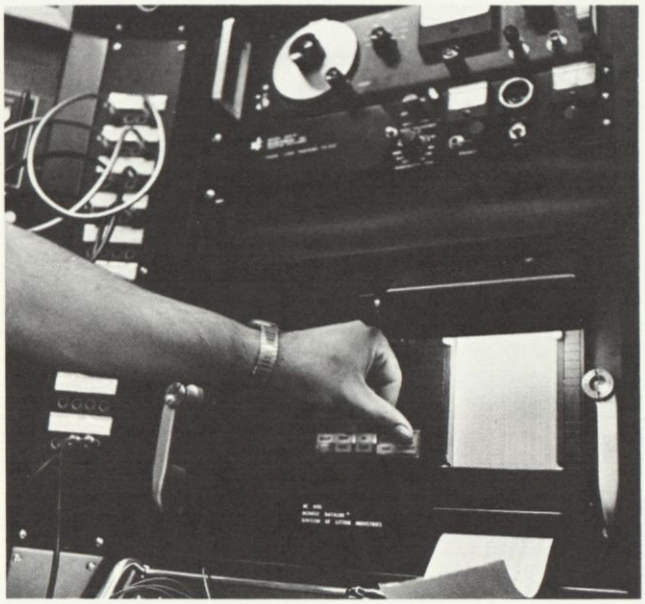

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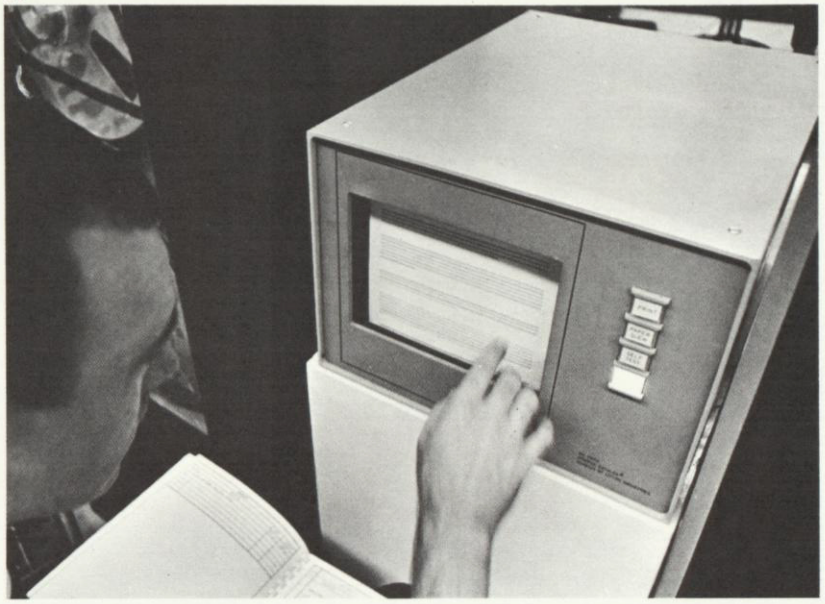

**a** Magnetic Ticket Encoder

**b** Automated Commuter Gate

**c** Datalog MC 4000 Fiber Optic Printer

**d** Advanced MC 8800 Optic Printer

"Man cannot halt the wind but he can build windmills." The incessant winds of change shift the sands, arranging the same uncounted grains into ever-new combinations. So too does change transform society and business into dynamic combinations. Those who would harness the forces of change must first understand their causes and effects.

Litton in fiscal 1966 continued to deliver a broad range of technologically advanced systems and products to significant defense programs and the exploration of space.

As the world's leading producer of inertial navigation equipment, Litton produced its 5000th inertial system, more than the combined total of all competitors. The most advanced Litton guidance unit is the Stellar-Inertial-Doppler System (SIDS), currently in production. Successfully flight tested for the Air Force last year, the Stellar-Inertial Doppler System is the first production system of its type, demonstrating a continuous highly accurate guidance capability. This advanced system incorporates the most superior features of the three major types of airborne navigation techniques—stellar tracking, inertial guidance and doppler.

ADVANCED STELLAR TRACKER

Shortly after the end of the fiscal year Litton was awarded a contract for additional quantities of the Stellar-Inertial-Doppler-System for application to long-range aircraft navigation requirements. The company also received a contract for the research, development, test, evaluation and production of the stellar navigator for the FB-111 strategic bomber.

This startracker is an outgrowth of our production Stellar-Inertial-Doppler programs. It will provide the FB-111 strategic bomber with continuous, accurate navigation capability, making possible intercontinental missions required for delivery of strategic weapons to enemy targets.

Litton is already producing LN-14 inertial navigation systems for the Air Force F-111A attack aircraft and the Navy F-111B carrier-based fleet air defense fighter.

Another new production inertial unit is the LN-15, a low-cost system featuring high performance, light weight and low maintenance. Before reaching production it was flight tested on more than 100 missions in both high and low performance aircraft. Demonstrations of the commercial version of the system, the LTN-50, are scheduled in 1967 with major airlines and aircraft manufacturers. We expect that a considerable market will develop for Litton's highly reliable commercial navigation techniques.

NEW INERTIAL USE

In a significant new application of our inertial navigation technology, the company is producing a truck-mounted computerized guidance system for the Army. Designed essentially for deployment with artillery units, it would substantially increase firing accuracy. The inertial guidance system also can be utilized to generate airborne surveying and topographic information.

Litton airborne inertial systems are in combat use in Southeast Asia aboard F-4, A-6A, P-3A and E-2A aircraft, earning praise from military commanders for their reliability and accuracy in several thousand critical weapon delivery and patrol missions in the last year. We are equally proud of commendations accorded Litton field representatives serving in the Vietnam area. Operating on a round-the-clock basis under combat conditions, our men are providing advisory assistance in the training of service and maintenance personnel for Litton navigation equipment.

Litton holds a major position in the field of tactical command and control systems. At the close of the fiscal year, the company submitted an extensive proposal for development and production of an advanced, tactical command and control system for the Air Force. Designated the 407L, the system will be highly mobile and adaptable to a wide range of command and control assignments. The 407L is expected to set the

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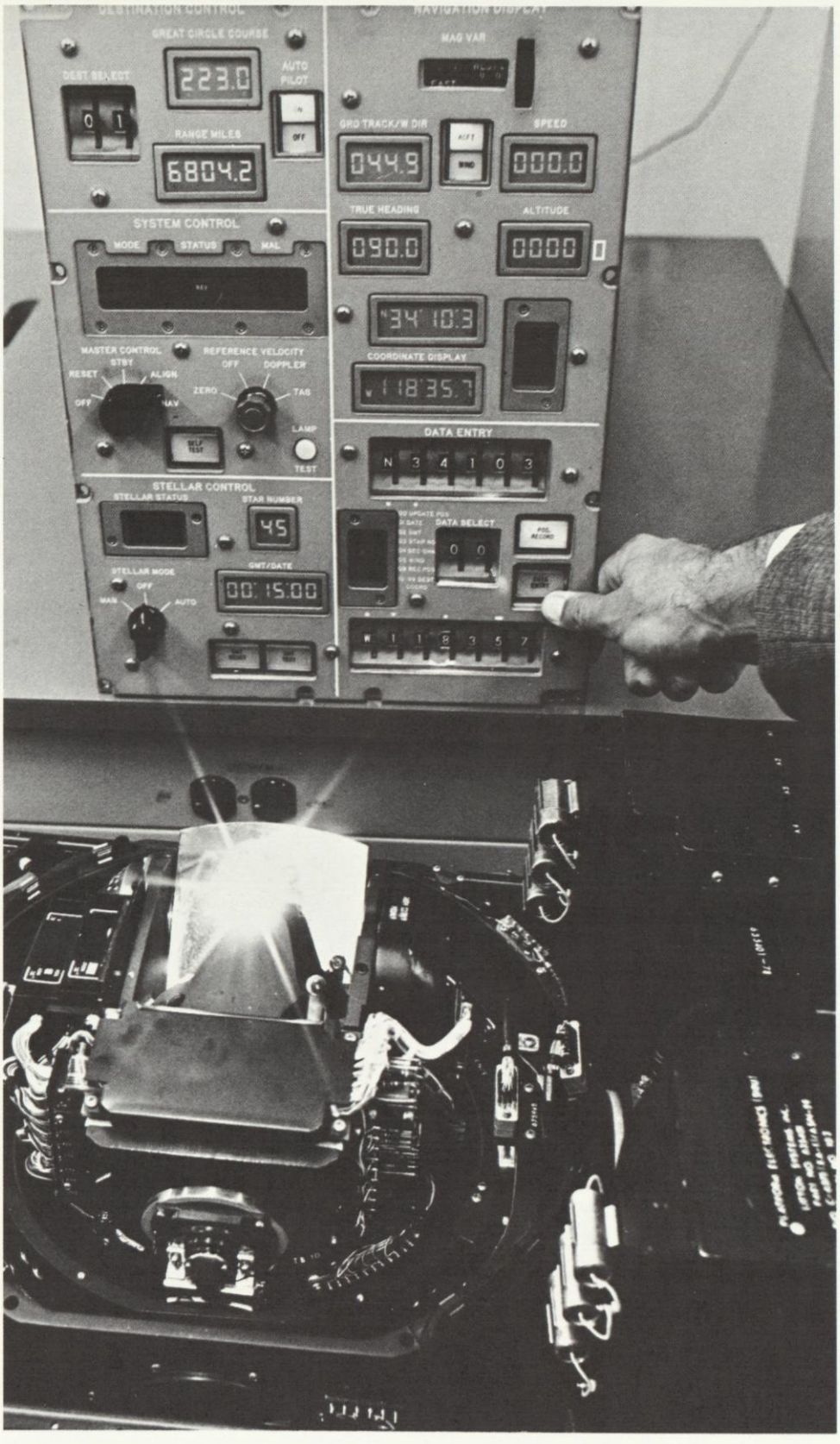


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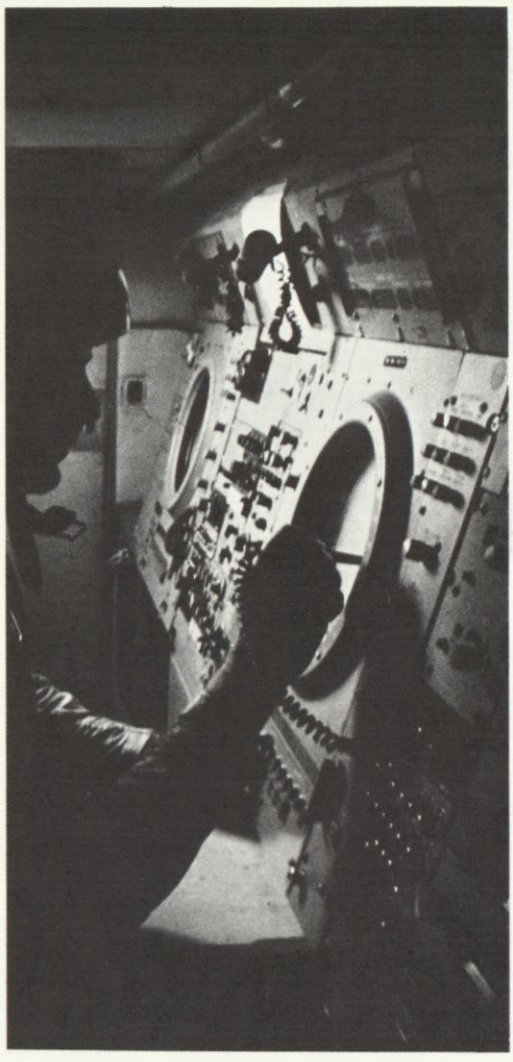

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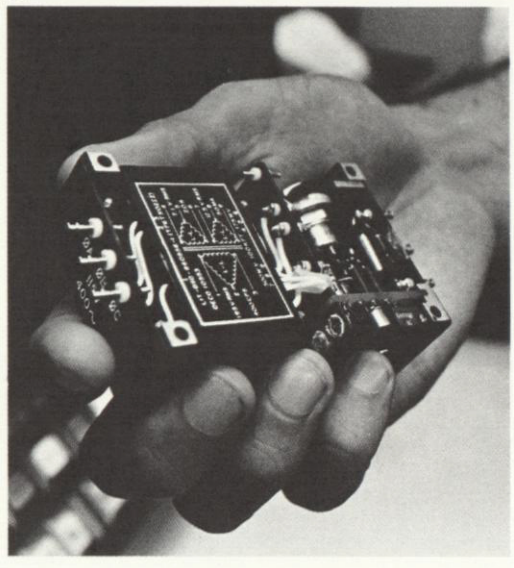
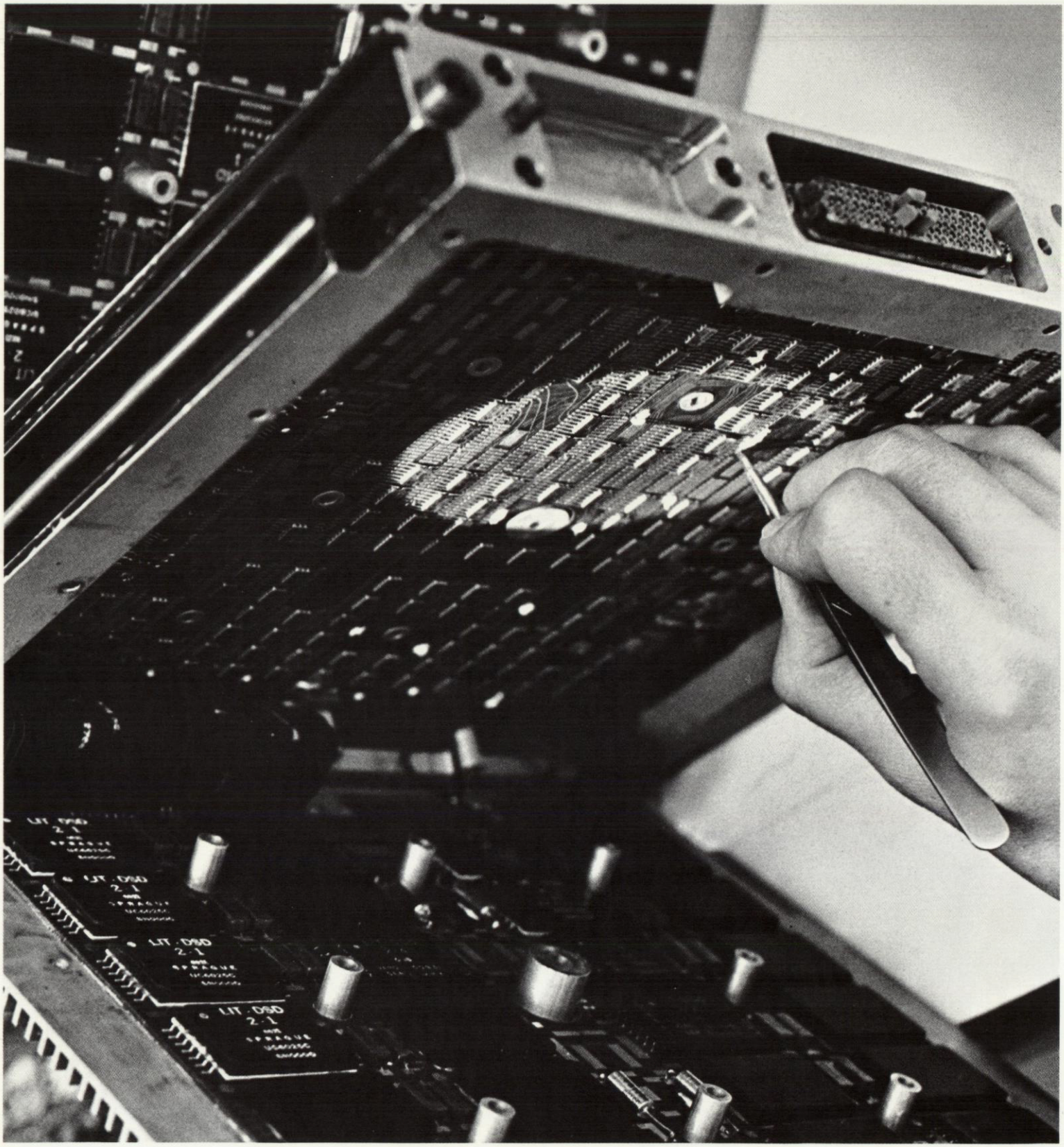


**a** Stellar-Inertial-Doppler Guidance

**b** Air Tactical Data System

**c** Microminiaturized Power Supply

**a**



**a** Advanced Microelectronic Technology

standard for a new generation of such systems. Litton is one of two remaining companies competing for this major contract. The Air Force is expected to make its award in December for the tactical system.

Litton's command and control capability has been effectively demonstrated in the Vietnam conflict. Our computer and display equipment in the Air Tactical Data System (ATDS) is monitoring and controlling Navy and Air Force air strikes over hostile territory. The systems, functioning on board the Navy's E-2A "Hawkeye" early warning aircraft, have been used primarily as airborne command and control centers for Navy strike aircraft. Working with the Air Tactical Data System, Navy strike aircraft have experienced an exceptional degree of success, completing approximately 95 per cent of their assignments. During the 1967 fiscal year, the company will continue deliveries of equipment for these systems.

In 1966 Litton delivered the first operational unit of the Marine Corps Tactical Data System (MTDS). The most highly automated tactical command and control system in existence, the ground-based Marine Corps Tactical Data System controls air weapons—both aircraft and missiles—and is transportable by helicopter. In numerous exacting tests, the Marine Corps system exceeded by a considerable margin all of its reliability and performance standards.

## MICROELECTRONIC FOREFRONT

Incorporated extensively in new Litton defense and space products are the company's advanced microelectronic design and production techniques. The microelectronic concept for building smaller, less costly and more reliable equipment has revolutionized the electronic industry in the span of only a few years.

From the inception of microelectronics in the late 1950's, Litton assured its place in the forefront of this technological revolution. In a major company-sponsored effort involving all types of microelectronic devices—emphasizing integrated circuits—we designed superior performance characteristics into prototype systems.

The company recorded the first sales of its L-300 and L-3000 series of microelectronic general purpose computers in fiscal 1966. Customers include the United States Navy, Army and the Royal Canadian Navy. The computers have wide military applications and replace large-scale data processors. They are smaller, lighter and faster than conventional computers. Five production prototypes of the L-304 model are being tested for the Navy's Air Tactical Data System. Production of Litton's microminiature power supplies, used in the L-300 and L-3000 computers, also was expanded as additional contracts were received for these compact, highly reliable power units.

## SHIPBOARD CONTROL

Litton Systems, Ltd., of Canada was selected to develop the Free World's first microelectronic shipboard command and control system for the Royal Canadian Navy. In another example of inter-division effort, technical assistance on the program will be supplied by our Data Systems division. Key elements of the system are the L-304 microminiature computer and advanced microelectronic display consoles. The shipboard system will provide automated command and control for anti-submarine warfare surface firing and for air defense. The initial contract calls for a number of shipboard systems and a shore-based computer programming center.

Under a contract with the Army Missile Command, the company has delivered for evaluation microelectronic data processing

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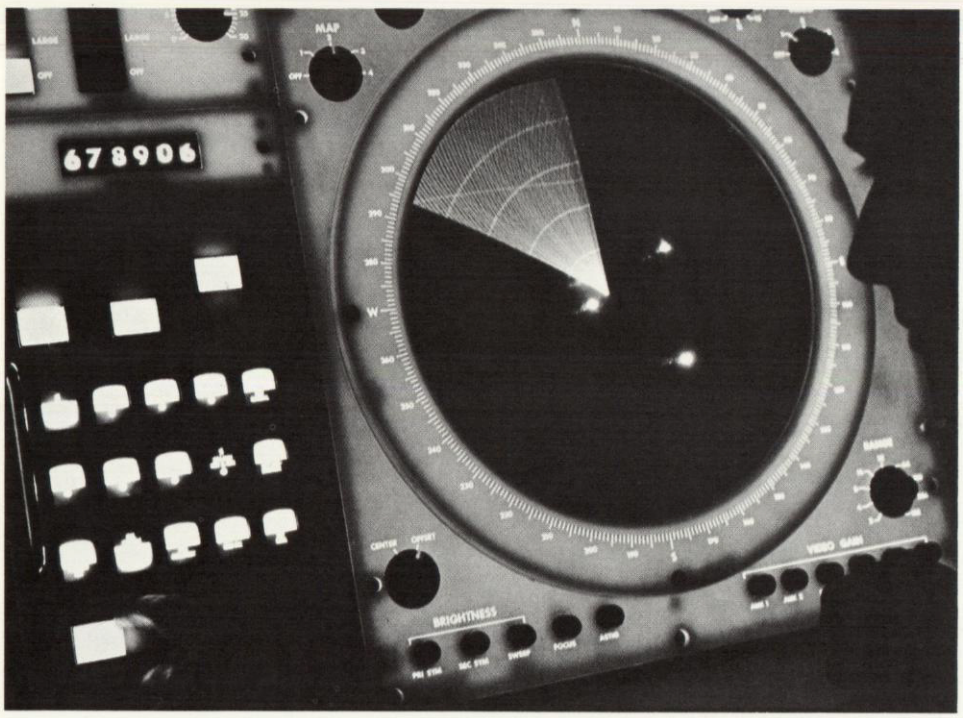


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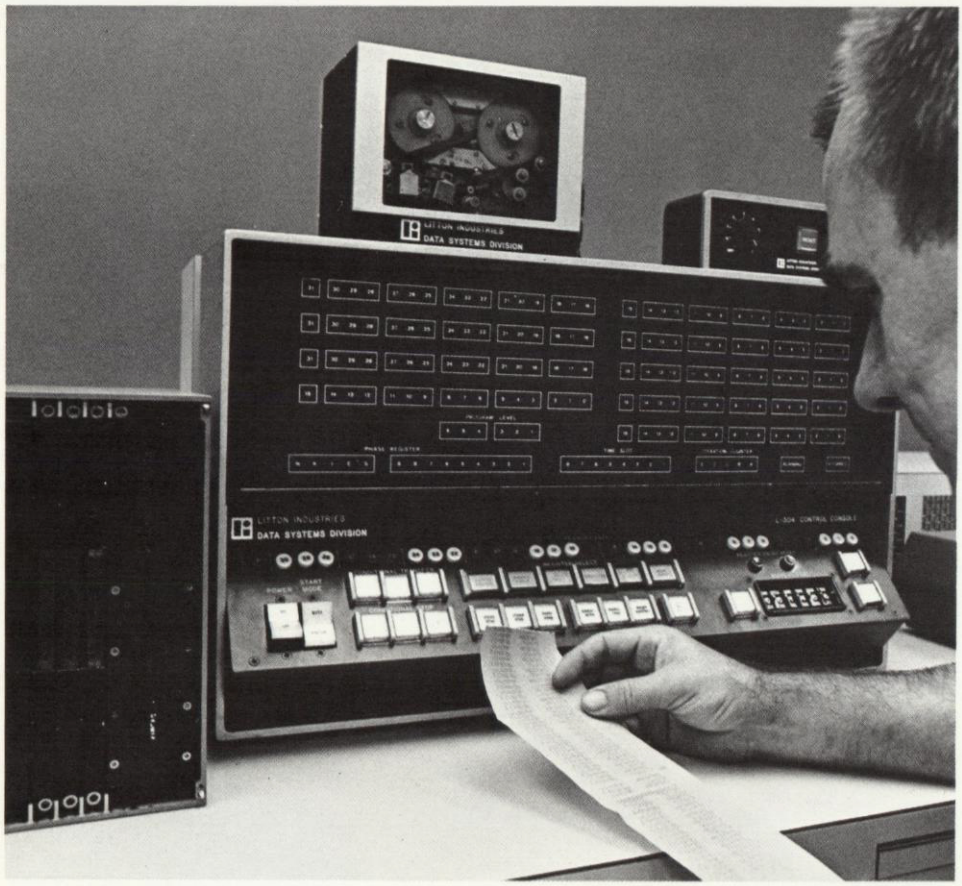


**a** Shipboard Microelectronic Command and Control

**b** L-304 Microminiature Computer

**c** Trainer-Simulator

**d** Crystal Technology

units designed to control and coordinate surface-to-air missile batteries. Each unit incorporates 1,685 separate integrated circuits and is only 3.4 cubic feet in volume. The equipment is designed to be mounted inside missile batteries around the world. It would replace units which now must be housed in separate buildings and trucks.

Another new Litton microelectronic product is a transmission device no larger than a first aid kit, allowing forward military observers to send detailed combat messages in less than a second. The Digital Message Entry Device (DMED), accelerates communication with command and control centers. Manually operated switches trigger prearranged coded digital messages. It virtually eliminates the risk of enemy jamming, interception or garbling of vital intelligence information and permits allied military units speaking different languages to communicate with each other.

## TACTICAL CODER-DECODER

Litton also was awarded a contract by the Air Force for development and production of a new microelectronic coder-decoder system designed to increase the effectiveness of tactical aircraft on combat missions. The Litton system will simplify and speed air traffic operations by providing automatic control, validation and identification of friendly aircraft.

A new undertaking by the company was the establishment of the Litton Scientific Support Laboratory (LSSL) for the U.S. Army at Fort Ord, California. Utilizing advanced data processing and telemetry techniques, scientists and technical personnel at the Litton laboratory are developing experiments and methodology for the test and evaluation of new weapons and tactics by the Army Combat Development Command. The program is being directed by our Data

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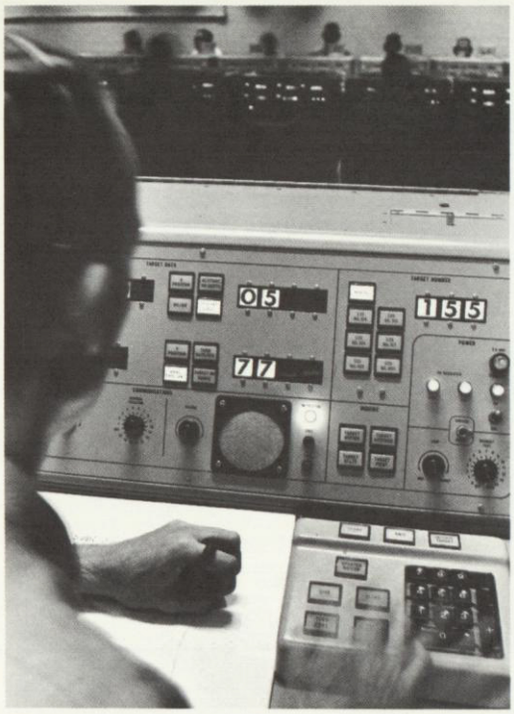


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Systems division, with assistance by the Westrex Communications division. As an integral part of the program a Litton team in Vietnam is evaluating vital tactical concepts under actual battlefield conditions.

IN VIETNAM HELICOPTERS

The Vietnam conflict also created a strong demand for Hewitt-Robins' transmission and gearing systems used in helicopters and jet aircraft engines. Overall production of these Litton products doubled while manufacture of transmissions for the Army's CH47A Chinook helicopter tripled. The division builds five separate transmissions for the Chinook, totaling more than 900 ultra-precise parts. Hewitt-Robins also supplied engine transmissions for the experimental tri-service XC-142A transport designed for short takeoff and landing.

One of the most significant accomplishments during the year was our selection by the Navy to define the scope of the Fast Deployment Logistic Ship program (FDLS), which will be the largest peacetime shipbuilding project in the history of the United States. Litton was one of three companies selected. The winner of the production contract, to be announced next June, will be awarded a total package contract that will include responsibility for development, manufacturing and support of a fleet of large, efficient fast deployment logistic ships. Traditionally the Navy has drawn its own blueprints and specifications and spread construction work on a year-to-year basis among companies submitting the lowest bids on single-ship contracts. On the Fast Deployment Logistic Ship program, the Navy for the first time on a shipbuilding program of this magnitude is following the practice of having prospective contractors conceive and propose plans to assume responsibility for the entire project.

"The timeless ideas in politics from Pericles to Churchill . . . Find an enduring symbol in liberty, tolerance, integrity, and responsibility" this goddess who holds her torch as a worldwide beacon of freedom.

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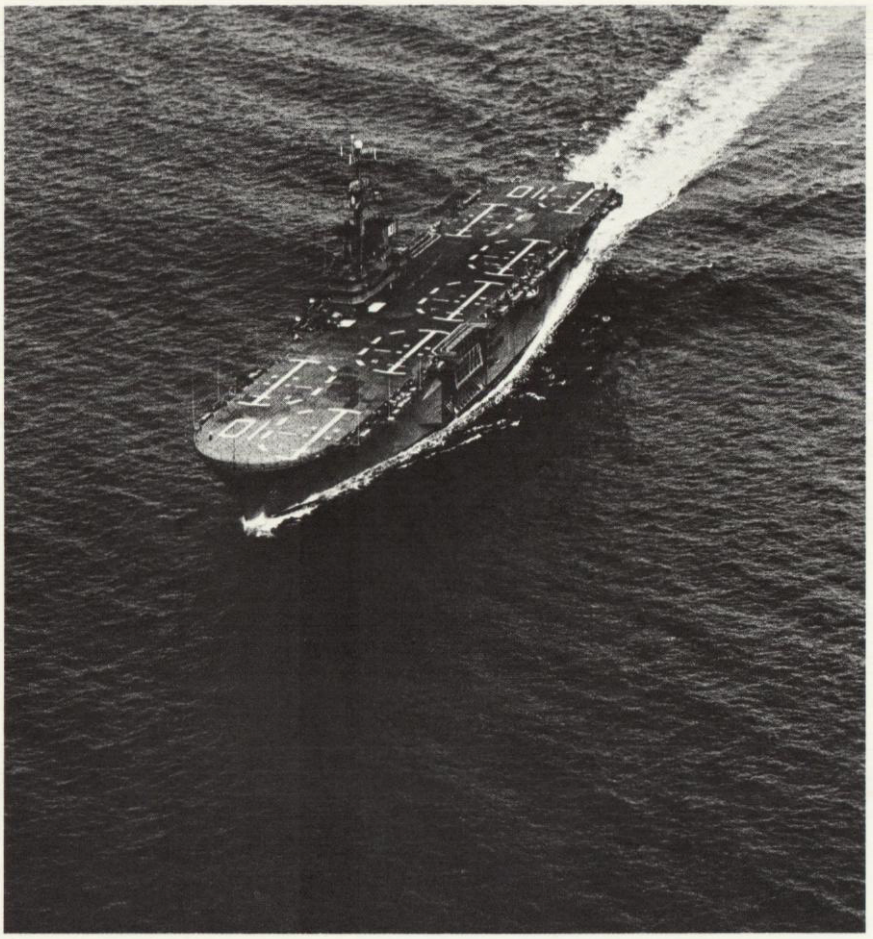

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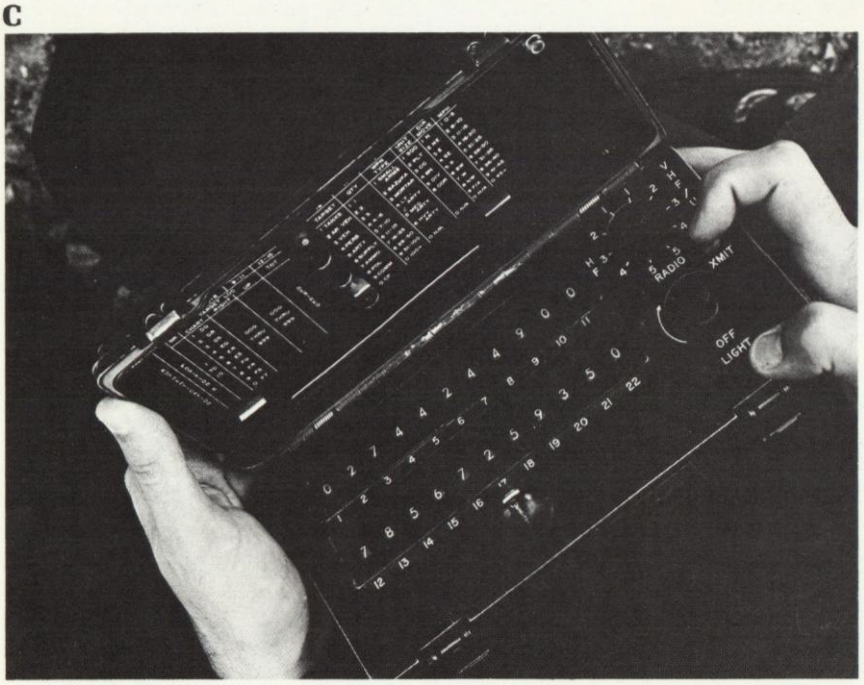


**d**

**a** USS Tripoli Helicopter Control

**b** USS Tripoli LPH Assault Ship

**c** Digital Message Entry Device

**d** Litton Transmissions in Chinook Helicopter

Litton's current shipbuilding operations continue to make an important contribution to the U.S. Navy's role in the nation's defense. Our Ingalls operation delivered the USS Tripoli, an amphibious assault ship, to the Navy. The Tripoli is scheduled to be assigned to the Seventh Fleet operating off Vietnam. It is capable of transporting a complete assault force of thousands of combat marines to a battle zone and deploying them behind enemy lines from Tripoli-based helicopters. The handling of three major logistic elements—personnel, cargo and helicopters—previously required separate vessels. They now are combined in the Tripoli. The amphibious assault ship is a key factor in American strategy for victory in a guerrilla-type war. Litton has eight other military ships under varying stages of construction at its Pascagoula, Mississippi facility, including four nuclear submarines and four amphibious surface ships.

OCEANOGRAPHIC DATA

In undersea exploration activities, one of Litton's latest developments is a new oceanographic data collecting system, the Model 1001. It is designed for gathering oceanographic data on such factors as depth, temperature and salinity. The digital Model 1001 combines an underwater data sensing package, deck data conversion equipment, and a recording/display console. Four prototype units of the system have been purchased by the U.S. Coast Guard. It also is being evaluated for deep water use by the Naval Oceanographic Office.

Litton is producing major elements of the most advanced antisubmarine warfare system yet to be developed by the Navy—the AN/SQA-13. The company will deliver the shipboard launching equipment for the antisubmarine warfare system, which includes a variable depth sonar mounted on the stern of a destroyer or a destroyer escort.

A highly publicized undersea event involved Alvin, a Litton-produced two-man research submarine. The midget submarine located the hydrogen bomb lost off the coast of Spain. A research craft developed for deep sea scientific exploration, Alvin enables Navy scientists to study marine life at depths down to the 6,000-foot level.

TRAINER-SIMULATOR

In the fourth quarter we delivered to the Navy the first Combat Information Center Trainer-Simulator System. It will be used to improve Navy skills in searching, navigation, detection, tracking and identification-evaluation of ships and aircraft. Directed by a shipboard computer, the system operates in real time and has the capability to simulate a wide range of Naval problems. These training tests include problems in anti-aircraft and anti-submarine warfare as well as surface maneuvers.

Litton electronic and electromechanical component products contribute to many defense and space programs. Our Airtron division's advanced development laboratory enhanced its reputation as a leader in originating techniques for growing large single crystals in demand throughout the aerospace industry. Litton now is doing advanced research and development toward improving the producibility and quality of these crystals. This new program is aimed at raising the inherent quality of yttrium iron garnet crystals, which already have substantially reduced the size and improved the performance of many of the newest microwave devices. During the year Litton ruby and yttrium aluminum garnet crystals were employed in the control of laser energy, and sapphire crystals were used as integrated circuit substrates.

The company's newest technical develop-

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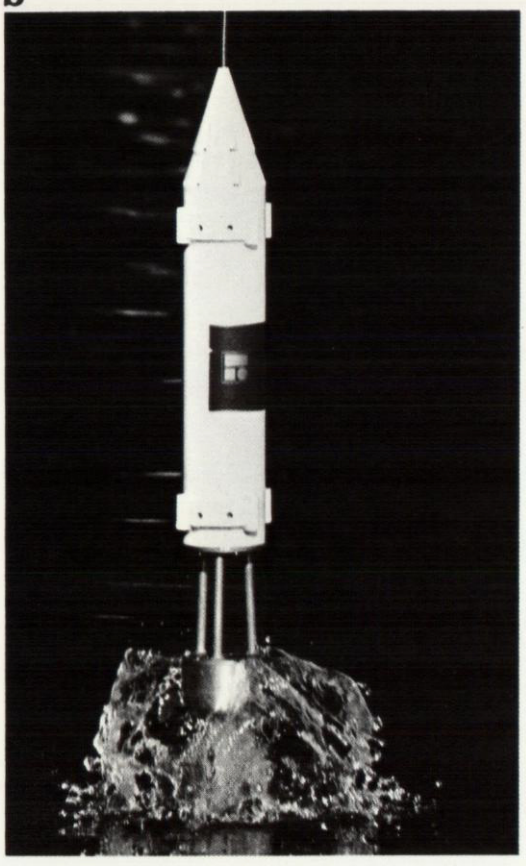


ment in the encoder field is the utilization of gallium arsenide diodes as the light source to make possible reliable optical encoding. This solid-state development assures higher reliability and accuracy than other units using conventional light sources. Encoders measure the precise position of electromechanical rotating devices, such as radar antennas, tracking equipment and automatic ground-controlled landing systems, then translate this data into electronic impulses meaningful to a digital computer. Encoders, used extensively in computer-controlled systems, initiate separate coded signals for up to 524,288 segments of a single shaft revolution. Litton leads its competitors in production of gallium arsenide encoders and is the only company offering computer manufacturers all types of commonly used miniaturized shaft angle encoders—optical, magnetic and contact.

DOUBLED MARKET

The markets for Litton's electromechanical synchros and resolvers nearly doubled in the past year. These components are precision links between electrical and mechanical elements of aerospace systems. Significant new application of these components are for the F-111 and the A7A aircraft. All programs involving synchros and resolvers are expected to continue at a high rate for many years to come.

Among Litton's contributions to the nation's space program was the development and installation of a programmable system for varied types of voice intercommunication at Cape Kennedy. The system for the first time provides automatic interconnection for Cape Kennedy space and missile missions, utilizing more than 900 telephone and intercommunication circuits. As many as 600 of these circuits can be tied in simultaneously on a single conference line, thus



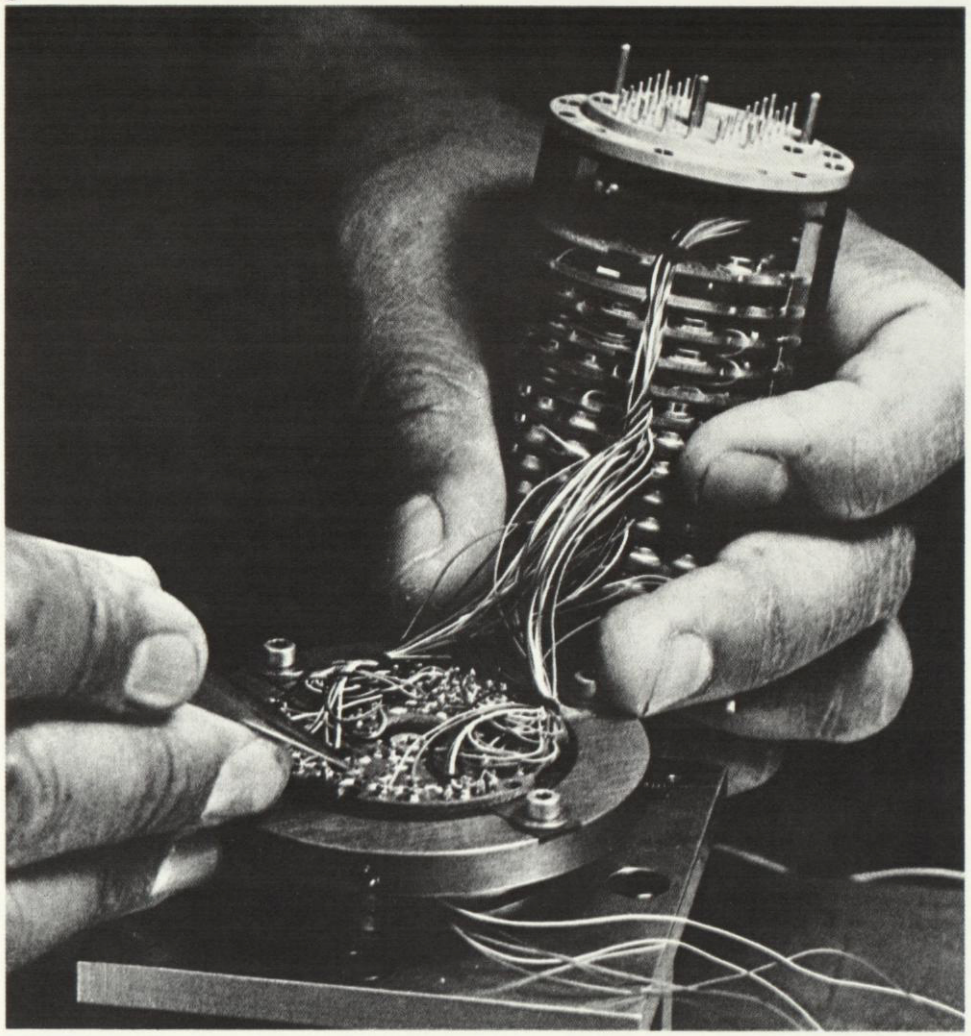
**a** Cape Kennedy Communications

**b** Oceanographic Sensor

**c** Gallium Arsenide Encoder

**d** Alvin Deep Research Submarine

c



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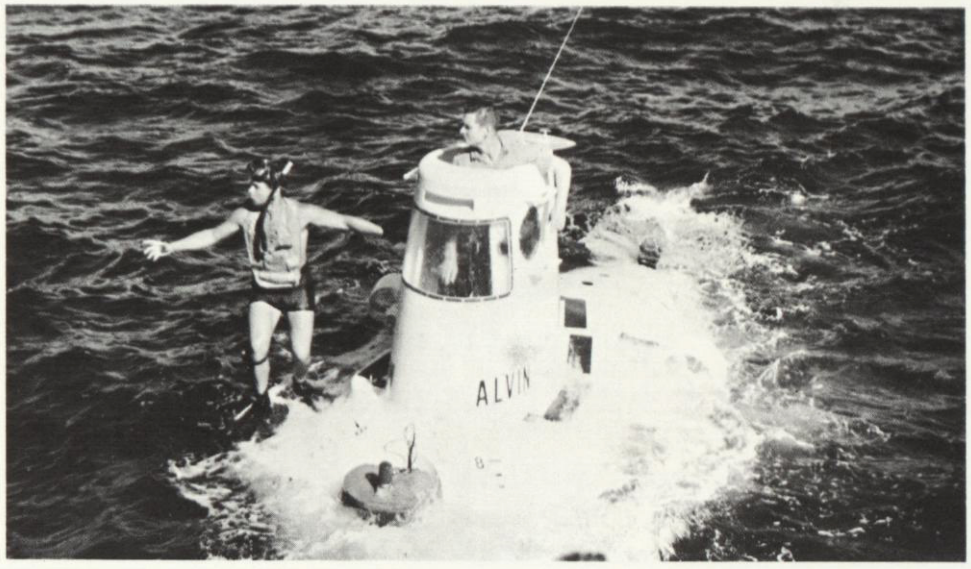


avoiding delay in diverse communication of critical instructions or information during missile or space vehicle launchings. Before the Litton system became operative, each mission required time-consuming manual installation of a complete network.

In the Air Force's global satellite control network, Litton's Mellonics division increased its activities fourfold in the design and development of computer programs. Litton-generated programs perform all real-time command and control functions for the satellite control center and its remote stations. We also have completed the first phase of computer programs for a large-scale data system serving the nation's important Defense Atomic Support Agency.

MARINER DATA PROGRAM

For the Mariner space probe scheduled to fly past Venus in 1967, Litton is developing a data automation system under a contract with the Jet Propulsion Laboratory in Pasadena, California. In addition to acquiring and transmitting information back to Earth, this data system will perform numerous complex functions—command Mariner telemetry and tape recording operations, initiate antenna and certain mode changes, and generate and receive sensor power and signals.

Every major space vehicle launched by the United States has carried Litton components. Each vehicle in the Gemini series, for example, contained more than 100 different Litton components, including the high temperature antennas on the capsules that successfully transmitted signals back to earth despite the intense re-entry heat. As space exploration progresses, Litton will continue to participate significantly.

The industrial and professional products and services of Litton comprise a broad spectrum of technologies.

The field of transportation represents an important worldwide economic growth sector that has not yet experienced the full impact of the technological revolution. To concentrate on advanced transportation systems of the future, the company established an Industrial Transportation Systems organization which will utilize Litton capabilities in shipbuilding and materials handling. Initial emphasis is being focused on ocean and inland marine transportation systems, including the design and construction of vehicles and equipment. Among the varied Litton development activities are transportation systems that encompass all phases of moving goods from their raw material origins to the ultimate user.

In materials conveyance, handling and processing activities, the 1966 performance of Litton's Hewitt-Robins operations was one of record accomplishment. One significant achievement was increasing the capacity of high-tension steel cable belting, which greatly implements the building of long distance conveyors. This development permits manufacture of belting that maintains tensions exceeding 6,000 pounds per inch of conveyor width, compared with the former industry maximum of 2,000 pounds.

## WORLDWIDE ACHIEVEMENTS

Orders from several countries for development and production of materials conveyance and processing systems added greatly to our record sales achievements in this important field. Newly contracted installations include a conveyor complex for a steel company in Canada; the world's largest ore-handling system for a steel company in India; eight portable processing plants for construction of roads, railbeds, harbor and dock facilities in Turkey; and floating marine supply lines for shiploading off the coasts of Brazil and the Philippines.

Litton is also prominent in the production of electronically controlled unit handling equipment for expanding applications in manufacturing, warehousing and freight operations. These systems utilize automated methods for the efficient transport and storage of various sized package or container units. In this field, Hewitt-Robins installed a fully automated appliance handling system at a major electrical manufacturer's plant. Largest in the appliance industry, the system automatically separates household appliances into color, size and style choices at the rate of one every four seconds. Segregating such appliances as refrigerators, washers and driers, the overhead system incorporates about one mile of 42-inch wide conveyors, moving through a 23-acre plant at a 132-foot-per-minute rate.

## AIR CARGO SYSTEM

The company plays an important role in the movement of air freight to the Far East with our air cargo system at Travis Air Force Base, California. It reduces total cargo loading time of a jet transport to 30 minutes from the many hours previously required. The Litton system, which has the capacity to handle up to 500 large cases or bundles per hour on its roller conveyor, processes an average of 10,000 tons of military air freight per month.

The nation's Merchant Marine constitutes a major area of interest for Litton's Ingalls shipbuilding operation. Builder of America's first automated cargo ship, the company received a contract from Moore-McCormack Lines for four new and completely different automated cargo ships. The new ships, over 600 feet in length, are designated C-5 cargo vessels and will be capa-

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**a** Litton Transportation and Materials Handling

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ble of carrying bulk as well as container cargo. They incorporate dual loading facilities for cargo either to be lifted aboard by cranes or rolled aboard through stern and side loading ports. Fabrication has started on the ships and the contract will continue through 1967. Construction began during the year on ten automated cargo ships for American President Lines and Delta Steamship Lines. For McLean Industries, one container cargo ship was delivered at the end of the fiscal year and another is under construction. With the completion of these 16 major vessels under construction or contract, Litton will have produced a greater number of automated cargo ships than any other shipbuilder in the country.

Ingalls is also building the Oregon II, a special purpose ship for exploratory fishing and ocean research. Being fabricated under a contract from the Department of Interior's Bureau of Commercial Fisheries, Oregon II is the first vessel designed specifically for distant-range fishing research and ocean exploration. To meet the unique demands of exploratory fishing, it will be fitted with extensive electronic equipment and combines the best features of oceanographic and biological research vessels.

Litton's competitive position in shipbuilding has been greatly enhanced by installation of the most highly automated fabrication facilities in the industry. Sheet steel is marked for cutting by optical methods, and a continuous, in-line burning operation automatically cuts the steel to the specific configurations needed for individual ships under construction.

## OIL SEARCH REVOLUTION

For petroleum exploration, Litton introduced a major development—the airborne gradiometer avionics system. This electromagnetic system represents a revolution in

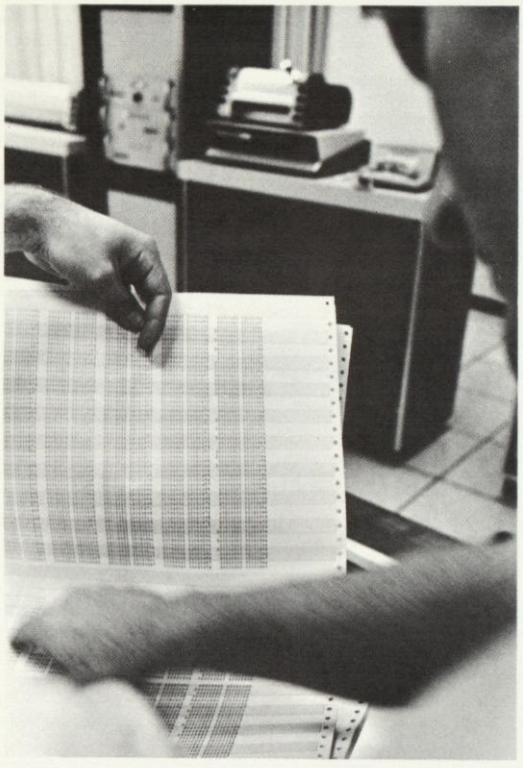
**a**


**a** Apollo Project Simulation

**b** Systems Analysis Techniques

**c** Seismic Oil Exploration Data

b



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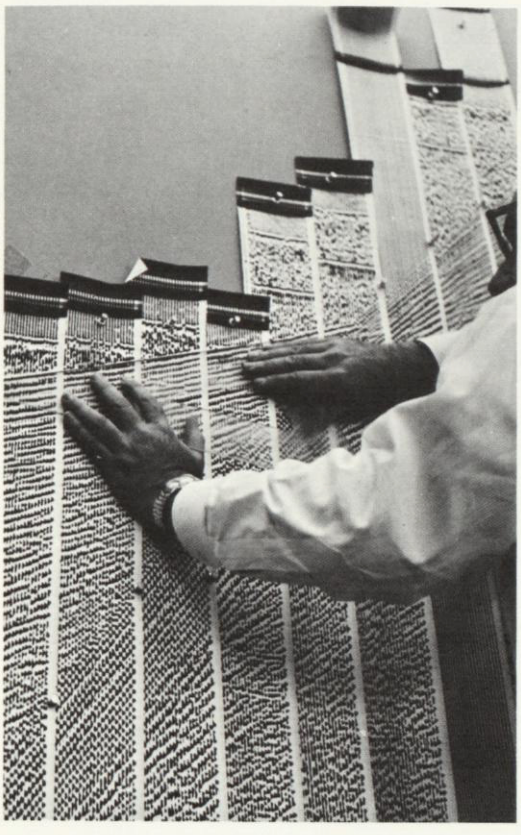

the application of advanced technology to the aerial search for oil resources. The heart of the system is the gradiometer which gathers detailed data on subterranean domes presumed to contain oil. Because Litton's gradiometer extracts data from deep oil-bearing formations, down to 30,000 feet, the probability of oil and gas discovery is improved substantially over other methods. Its advantages over earlier types of oil exploration instruments suggest that all previous magnetic surveys are obsolete and that new survey programs may be required. The magnitude of such a task is evident in the flight record of the company's Aero Service division which recently completed its 14 millionth line-mile of aerial magnetometer surveys.

SEISMIC SURVEY IMPROVEMENT

In our land and marine search for oil, the Western Geophysical division continued to expand its use of digital data equipment to permit faster, more comprehensive gathering and interpretation of exploration data. This further strengthened Litton's position in the seismic survey field.

Digital data processing of oil exploration results is now in full operation at Litton's Shreveport, Louisiana center. In addition, the company is now establishing another major office and digital data processing center in Houston to respond to growing petroleum industry needs in the Gulf area.

A London center was opened during the year consisting of five new large-scale, high-speed computers with special peripheral computing units. We are especially active in Australia with an organization consisting of marine and land crews and an analog data processing center in Perth.

The number of our marine survey crews equipped with digital recording capability was increased by 230 per cent in 1966

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b

**a** Vacuum Cavity Inside Klystron

**b** Klystron Tube-Coating Process

**c** Litton Microwave Cooking Equipment

**d** Pendulum Transducer Position Reference

while land seismic operations doubled. As a further innovation, Litton is applying advanced seismic techniques utilizing truck-mounted vibrator energy sources. These techniques have been proved to be more effective than customary explosive charges in producing seismic data for analysis.

WATER SEARCH EXPANDED

In 1966 Litton enlarged its water exploration activities to help fulfill a growing critical need of many nations. The search for water is an integral factor in the broader goal of formulating overall economic development plans for major geographic areas. In one such survey our scientists found water in a 700-square-mile area in Libya by analyzing aerial photographic and ground search data. Shortly after the end of the fiscal year, the company was commissioned by the United States Agency for International Development to conduct a hydrogeological analysis of the new country of Niger in North Central Africa.

Litton is becoming increasingly active in systems analysis for industrial and commercial customers. Systems analysis defines related elements of a broad problem and plans specific solutions. Employing techniques first perfected for command and control of satellites, the company, through its Mellonics operation, is applying advanced computer techniques to the scheduling of passengers and cargo for Scandinavian Airlines System. When implemented by this airline, the system will assure maximum utilization of aircraft for cargo transport and make possible instant passenger reservation confirmation anywhere in the world. Another project is the design and development of a computer system to control water supply and usage in San Jose, California.

During the past year, Litton became the world's largest supplier of microwave cook-

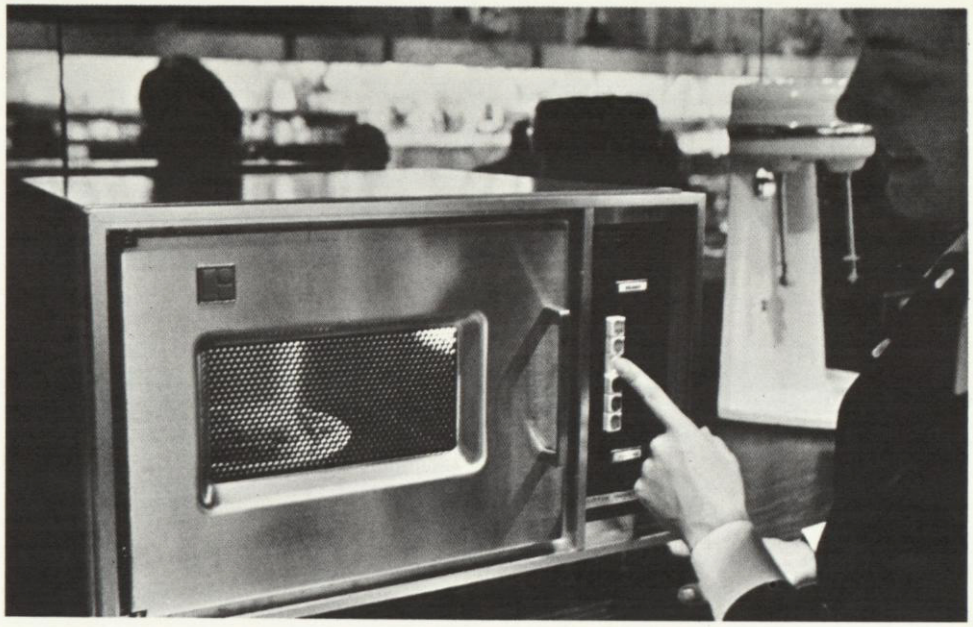
ing equipment for commercial use. Our units are used in food service operations ranging from self-service vending installations and restaurants to such institutions as hospitals, schools and military bases. This market success is reflected in the rising sales of Litton's microwave cooking equipment line which increased 250 per cent over 1965, led by introduction of the Model 500 in the first quarter. Approximately 210 million hot food servings were prepared in 1966 by the Litton microwave process. Many large restaurant chains recognized the advantages of Litton's microwave products by incorporating our units into systems that satisfy widely varied food service demands. The past year marked our entry into markets outside the United States. Offices were established in Canada and microwave cooking equipment was exported to Mexico, Australia, the Far East and Europe.

Our Electron Tube operation manufactures all our magnetron tubes that provide microwave cooking energy. We also produce magnetrons for other manufacturers.

KLYSTRON RESEARCH ROLE

Klystron tubes produced by Litton also play an important role in many basic research applications, particularly in linear accelerators. Litton supplied 250 of the pulse klystrons for the Stanford Linear Accelerator Center which recently went into operation at Palo Alto, California. We will also supply up to 450 replacement klystrons over the next five years for the accelerator. A similar installation, the National Bureau of Standards' new linear accelerator at Gaithersburg, Maryland conducts research into the basic nature of matter and nuclear structure. We are producing for this advanced accelerator all of the 5-million-watt klystrons for generating the bursts of power which drive one of the world's most intense

c



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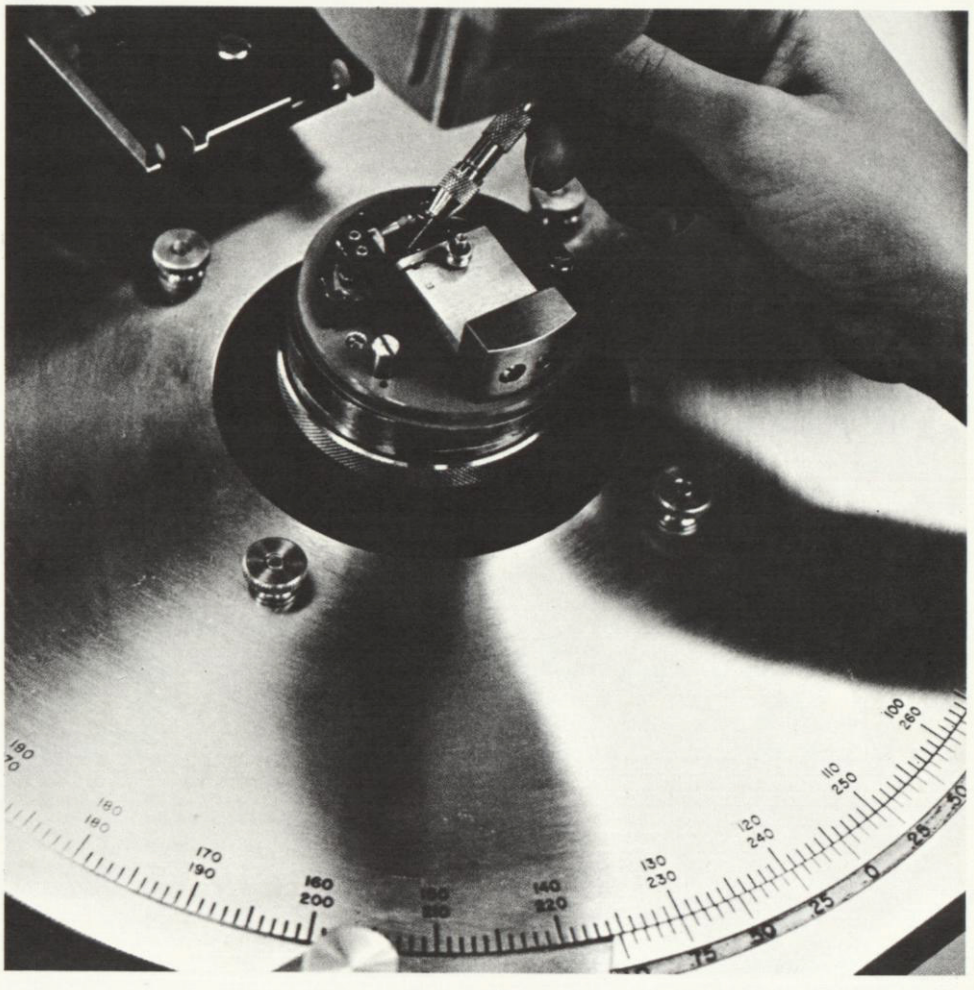

high-energy electron beams.

Also under development is a system that employs acoustic techniques to create electronic images of underwater objects. The system transmits acoustical impulses which are translated into a high-resolution picture on a television screen when the impulses are reflected from an underwater object.

A new product is the pendulum transducer which supplies an accurate vertical and horizontal position measurement. It is used as a leveling device in road grading and heavy construction equipment. It replaces expensive gyroscopes as a stability reference in aerospace applications. Other potential markets exist in industries such as textile, newspaper or graphic arts, which utilize a continuous roll process in production. The Litton pendulum transducer serves as a sensing control to prevent costly damage by halting the production operation if the moving material should break.

Litton's crystals or microwave components are incorporated into airborne weather radar, air traffic control transponders and related aircraft navigation equipment aboard all of the aircraft now operated by the nation's airlines.

Litton is a leading manufacturer of deflection yokes, an important electronic component in color television sets. The company tripled production of these yokes in an expanded plant during the year to claim more than 15 per cent of the total yoke market. Production is continuing to increase.

## LATIN AMERICAN FACILITIES

For major computer manufacturers, we have substantially increased the production of advanced core memory planes. Litton introduced computer memory technology to Mexico by establishing a manufacturing facility in Mexico City. Litton also opened a transformer production facility in Mexico



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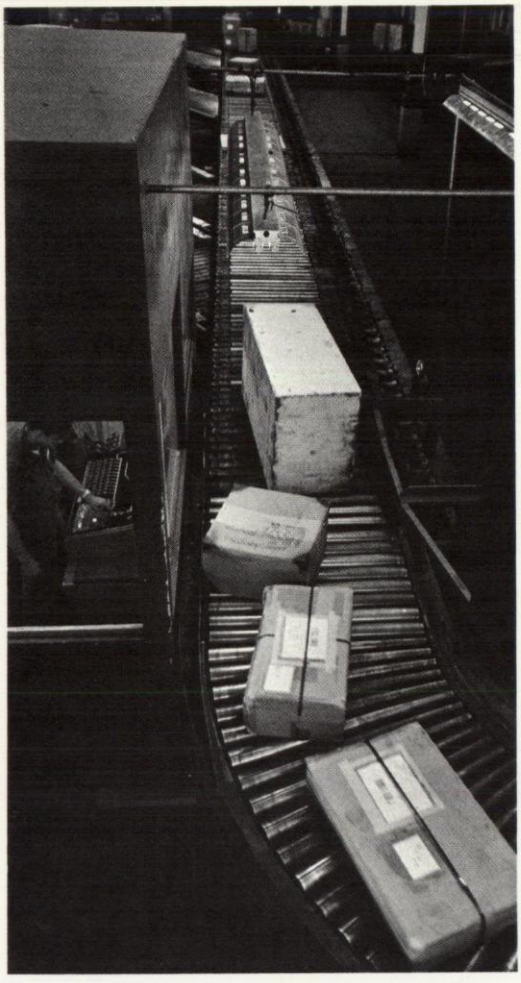

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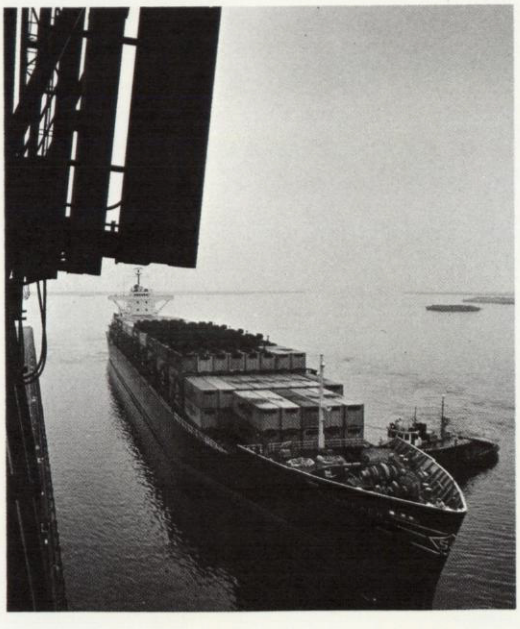
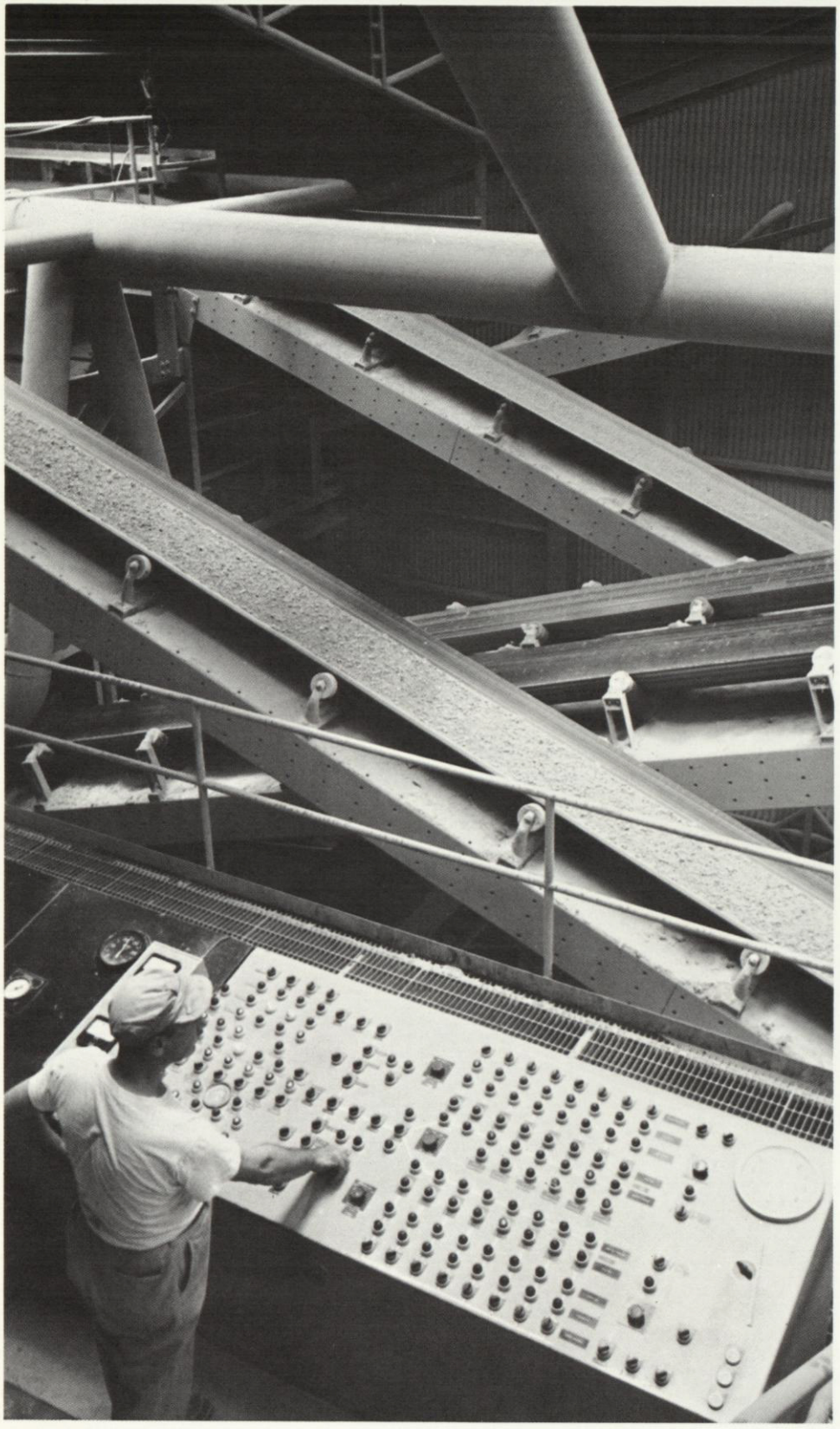


**a** Automated Air Cargo System

**b** Modern Container Ship

**c** Electronically Controlled Materials Handling



City to serve the Latin American market.

In 1966 Litton proposed to undertake comprehensive economic planning to relate resources to overall development in several countries. Other nations are expected to follow a trend in this country in which the states and the Federal Government are requesting industry to study and provide solutions to major economic and social problems. Under such proposals Litton would plan complete development programs, help obtain investment financing and supervise implementation. One preliminary study has been completed for a developing nation and additional detailed proposals are being prepared for other countries.

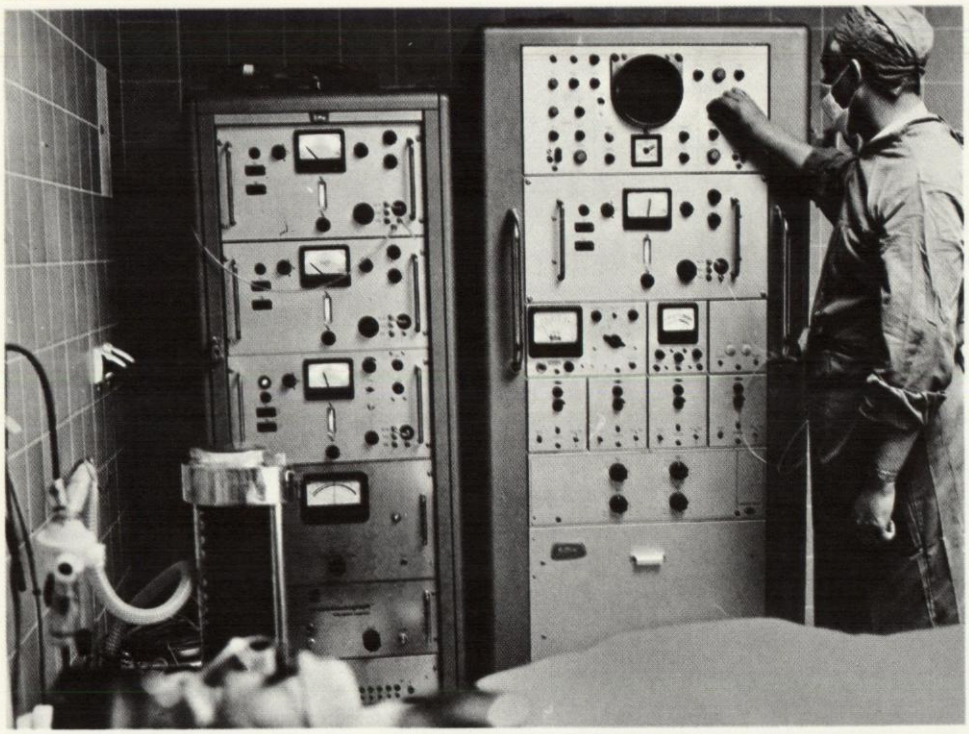
Another Litton endeavor is the proposed creation of a private venture capital bank for the Middle East. Participants in this venture, the United Banking and Investment Corporation, would include Litton, and American, Lebanese and European banks, together with Middle Eastern businessmen. The bank will be organized to invest its capital in private business enterprises.

## GROWING EDUCATION MARKET

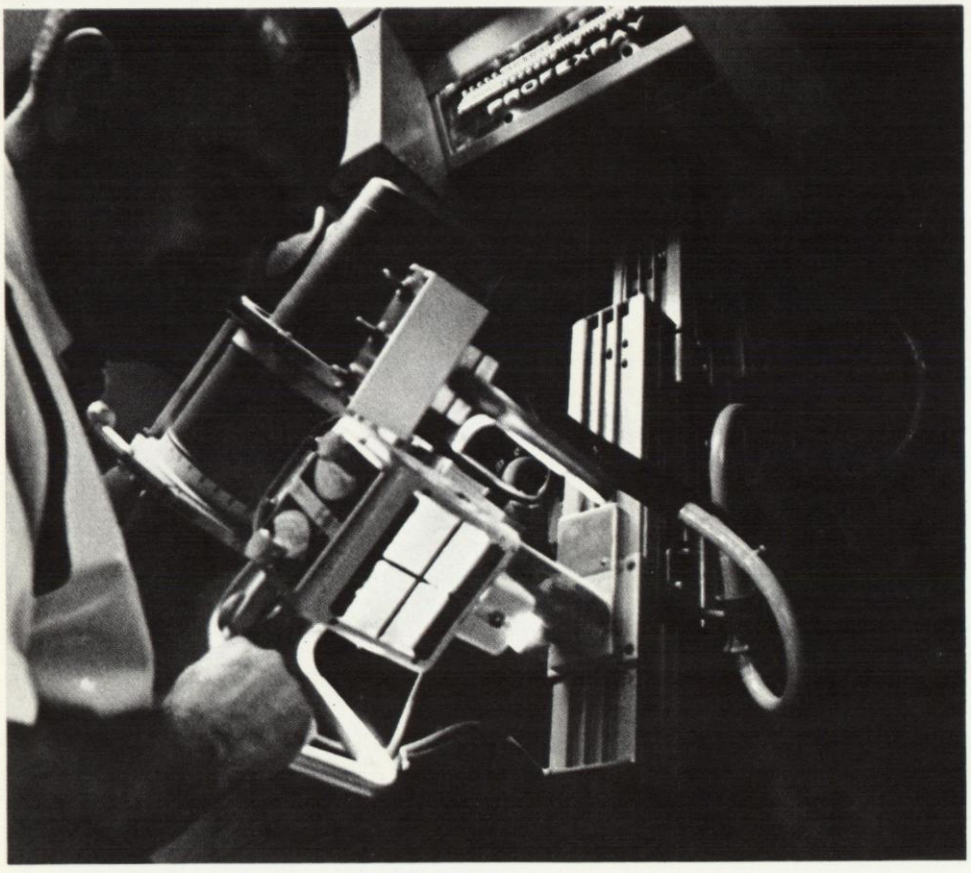
In the past year, we focused increasing attention on the dynamic field of education, most notably in planning and executing a pioneer program with Oakland Community College, Union Lakes, Michigan. Here our professional staff, incorporating the latest behavioral research concerning student learning patterns, designed the school's instructional system, curriculum and teaching materials. The college makes extensive use of advanced audio-visual methods and programmed instruction, a technique of presenting small segments of information in logical sequence to the student. This is followed by an immediate self-test for measurement of understanding.

The growing emphasis in schools through-

**a**



**b**




**a** Hellige Post-Operative Monitoring System

**b** Profexray Cine-Image Intensifier

**c** Audio Tutorial Education

**d** Computer Memory Plane

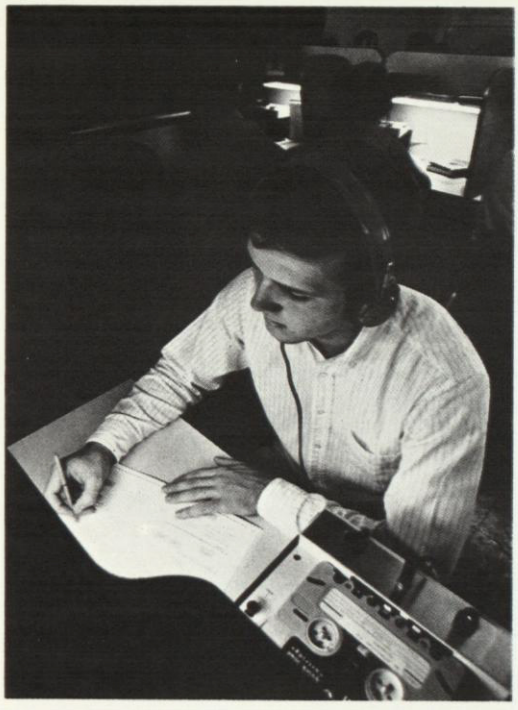
out the country to obtain more effective educational equipment and techniques has created excellent sales opportunities for Litton products. Approximately one-half of all typewriters sold in the United States for educational training purposes are manufactured by Royal. To further familiarize students with Royal products, Litton has introduced the new Key-Punch Training Tandem. This Royal unit consists of an Electress typewriter and a simulated plug-in keypunch device. When coupled electrically they permit a student to learn the operation of both machines in a realistic training situation as numbers punched into the Royal simulator are printed out by the typewriter. The Royal keypunch simulator is identical to the actual keypunch students will use on the job.

Litton's desk-sized computers make possible another teaching service to the school market. In the classroom the computers provide two specialized teaching techniques —Quickcomp for mathematics study and Bizcomp for vocational business departments. Enjoying increasing acceptance by educators, these simplified student-oriented techniques provide instruction in the use of computers for solving mathematical and business problems.

## MEDICAL ELECTRONIC ADVANCES

Litton in the past year became an even more important factor in the rapidly growing medical field where the need for advanced equipment was heightened further by new government programs making medical care available to a greater segment of the population. To meet expanding market demands, we developed a broader line of X-ray image intensifiers, including highly compact, lightweight units. The company also incorporated other related products into its systems to provide high-speed cinefluoroscopic (motion picture) and televi-

c



d

sion capabilities. To accommodate expansion and boost efficiency still further, Litton opened manufacturing facilities in Des Plaines, Illinois and added offices in nine communities, bringing total locations to 49.

In Europe Litton continued to develop advanced medical electronic equipment of modular design. Monitoring equipment for open-heart surgery was installed at Marburg University in Germany. This instrumentation monitors continuously all the critical physiological functions which affect the delicate surgical performance of this pioneering life-saving technique. To serve the European medical community, we have also introduced System 19, a new remote monitoring unit which permits the attending physician to give more intensive care to a greater number of patients during the critical postoperative period. The 19-inch, compact unit monitors heart rate, temperature, respiration rate and blood pressure, and contains a built-in electrocardiograph. Litton's patient monitoring system is the first to be modularized, allowing the physician or hospital to procure only the specific units required to meet varying situations, instead of buying a complete system containing functions which are not needed.

*Litton Industries thus supplies products and services for many of the major needs of contemporary man. Our performance results from fusing individual energy and ideas with the wide spectrum of the company's advanced technologies. Yet the year's accomplishments only suggest the vast promise of the possible. The future presents a continuing challenge—one best met by providing for creative minds a receptive environment where the best ideas will be advanced and managed to their ultimate potential.*

## LITTON WORLDWIDE

Major manufacturing plants, laboratories and general offices of Litton Industries located in 83 cities of 24 countries.

**AUSTRALIA:** *Ramsgate, Sydney,* Aero Service · **BELGIUM:** *Brasschaat,* Fitchburg Paper · **CANADA:** *Montreal, Quebec,* Royal Typewriter Company; *Ottawa, Ontario,* Aero Service, Litton Systems, Canada; *Scarborough, Ontario,* Hewitt-Robins; *Toronto, Ontario,* Eureka-Carlisle, Kimball Systems, Litton Systems, Canada, McBee Systems, Monroe International · **ENGLAND:** *Birmingham,* Westrex; *Hounslow, Middlesex,* Western Geophysical; *Leeds,* Eureka-Waddington; *London,* Litton Business Systems, Westrex; *Rayleigh,* Litton Business Systems · **FRANCE:** *Mulhouse,* Litton Business Systems; *Paris,* Litton Business Systems, Westrex · **GERMANY:** *Berlin,* Sass, Wolf; *Bonn,* Litton Industries; *Freiburg,* Fritz Hellige, Litton Technische Werke; *Hamburg,* C. Plath; *Merhausen,* Fritz Hellige; *Tuttlingen,* Georg A. Henke · **HONG KONG:** Westrex · **INDIA:** *Calcutta,* Hewitt-Robins · **IRELAND:** *Dublin,* Westrex · **ITALY:** *Genoa,* Royal McBee; *Milan,* Royal McBee, Western Geophysical; *Pescara,* Western Geophysical; *Pomezia,* Litton Italia; *Rome,* Westrex · **JAPAN:** *Osaka,* Westrex; *Tokyo,* Westrex · **MEXICO:** *Mexico City,* Memcom, Royal McBee, Sweda, Triad; *Tijuana,* Triad · **NETHERLANDS:** *Amsterdam,* Litton Business Systems; *Cuyk,* Royal Typewriter Company; *Leiden,* Royal Typewriter Company; *Medemblik,* Litton Business Systems · **PAKISTAN:** *Lahore,* Westrex · **PHILIPPINES:** *Manila,* Westrex · **PORTUGAL:** *Coimbra,* Sweda; *Faro,* Sweda; *Lisbon,* Sweda; *Porto,* Sweda · **SOUTH AFRICA:** *Johannesburg,* Hewitt-Robins · **SPAIN:** *Barcelona,* Westrex; *Madrid,* Aero Service; *Oviedo,* Cole Office Equipment · **SWEDEN:** *Stockholm,* Svenska Dataregister; *Sundbyberg,* Svenska Dataregister; *Varberg,* Svenska Dataregister · **SWITZERLAND:** *Bern,* Sweda; *St. Gallen,* Sweda; *Versoix,* Papeterie de Versoix; *Vesenaz, Geneva,* Permaco; *Zurich,* Litton Business Systems, International, Litton World Trade · **TAIWAN (FORMOSA):** *Taipei,* Westrex · **TRINIDAD:** *Port of Spain,* Westrex · **VENEZUELA:** *Caracas,* Monroe.

**UNITED STATES, ALASKA:** *Anchorage,* Western Geophysical · **ARIZONA:** *Phoenix,* McBee Systems · **CALIFORNIA:** *Anaheim,* Hewitt-Robins, Instructional Materials; *Beverly Hills,* Advance Data Systems, Guidance and Control Systems, Litton Credit, Litton Industries, Inc., Litton Leasing; *Canoga Park,* Guidance and Control Systems; *City of Commerce,* Eureka-Carlisle; *Culver City,* Fast Deployment Logistics Ship Program; *Goleta,* Advance Data Systems; *Hollywood,* Westrex; *Los Angeles,* Atlas Stationers, Kimball Systems, Profexray, Western Geophysical; *Lynwood,* Hewitt-Robins; *Monterey,* Data Systems; *Palo Alto,* Atherton, McBee Systems; *Pasadena,* Kimball Systems; *Pomona,* Hewitt-Robins; *Redwood City,* Eureka-Carlisle; *Salinas,* Streater; *San Carlos,* Electron Tube; *San Francisco,* Eureka-Carlisle; *Sunnyvale,* Mellonics; *Van Nuys,* Data Systems, Encoder, Inter/Pak, Memcom USECO; *Venice,* Triad Transformer; *Woodland Hills,* Guidance and Control Systems · **COLORADO:** *Colorado Springs,* Clifton Precision Products · **CONNECTICUT:** *Greenwich,* McBee Systems, *Hamden,* Profexray; *Hartford,* Business Equipment Center, Hewitt-Robins, Royal Typewriter Company; *New Milford,* Winchester Electronics; *Oakville,* Winchester Electronics; *Stamford,* Hewitt-Robins, McBee Systems, Royal Typewriter Company · **DISTRICT OF COLUMBIA:** *Washington,* Guidance and Control Systems · **FLORIDA:** *Cape Kennedy,* Westrex Communications; *Jacksonville,* Profexray; *Miami,* Profexray; *Orlando,* McBee Systems, Profexray; *Tampa,* Profexray · **GEORGIA:** *Augusta,* Aero Service · **ILLINOIS:** *Chicago,* Hewitt-Robins, Kimball Systems; *Danville,* Eureka-Carlisle; *Des Plaines,* Monroe International, Profexray; *Downers Grove,* Hewitt-Robins, *Melrose Park,* Hewitt-Robins · **INDIANA:** *Huntington,* Utrad; *Kendallville,* McCray · **IOWA:** *Burlington,* Leopold · **LOUISIANA:** *New Orleans,* Western Geophysical; *Shreveport,* Western Geophysical · **MAINE:** *Brewer,* McBee Systems · **MARYLAND:** *Baltimore,* Institute of Computer Management; *College Park,* Amecom, Educational Systems; *Silver Spring,* Amecom · **MASSACHUSETTS:** *Fall River,* Clifton Precision Products; *Fitchburg,* Fitchburg Paper; *Westminster,* Fitchburg Paper · **MICHIGAN:** *Saginaw,* McBee Systems · **MINNESOTA:** *Albert Lea,* Streater; *Duluth,* Guidance and Control Systems; *Hibbing,* Guidance and Control Systems; *Minneapolis,* Applied Science, Atherton, Profexray, Streater; *St. Paul,* Applied Science · **MISSISSIPPI:** *Jackson,* McBee Systems; *Pascagoula,* Ingalls Shipbuilding · **MISSOURI:** *Springfield,* Advanced Circuitry, McBee Systems, Royal Typewriter Company; *St. Louis,* Kimball Systems · **NEW HAMPSHIRE:** *Manchester,* McBee Systems · **NEW JERSEY:** *Belleville,* Kimball Systems; *Bloomfield,* McKiernan-Terry Marine; *Clifton,* Monroe International; *Morris Plains,* Airtron, Monroe International; *Orange,* Monroe International; *Paramus,* McKiernan-Terry Marine, Royfax; *Passaic,* Hewitt-Robins; *Totowa,* Hewitt-Robins; *Trenton,* McBee Systems; *Wayside,* Data Systems · **NEW YORK:** *Albany,* Profexray; *Brooklyn,* Regal Typewriter Company; *Buffalo,* Hewitt-Robins; *Chatham,* Streater; *East Farmingdale,* Kimball Systems; *Long Island City,* Profexray; *Mount Vernon,* Potentiometer; *New Rochelle,* Westrex Communications; *New York,* Business Equipment Centers, (hq), Business Equipment Group, (hq), Cole Office Equipment, Eureka-Carlisle, Fitchburg Paper, Kimball Systems, Litton Industries, Inc., McBee Systems, Royal Typewriter Company, Westrex; *Pelham Manor;* Westrex Communications; *Pleasantville,* Westrex Communications; *Rome,* Westrex Communications; *Syracuse,* McBee Systems; *White Plains,* Education; *Yonkers,* Lehigh Office Furniture · **NORTH CAROLINA:** *Hendersonville,* Royal Typewriter Company; *Hickory,* McBee Systems; *Murphy,* Clifton Precision Products · **OHIO:** *Athens,* McBee Systems; *Cincinnati,* Alvey-Ferguson; *Cleveland,* Atherton, Institute of Computer Management, Profexray; *Columbus,* Profexray; *Dayton,* National Tag; *Fremont,* Hewitt-Robins; *Sandusky,* Hewitt-Robins · **PENNSYLVANIA:** *Clifton Heights,* Clifton Precision Products; *Drexell Hill,* Clifton Precision Products; *King of Prussia,* Hewitt-Robins; *Kingston,* McBee Systems; *Moosic,* Fitchburg Paper; *Philadelphia,* Aero Service; *Pittsburgh,* Institute of Computer Management; *Scranton,* Eureka-Carlisle; *Troy,* Eureka-Carlisle; *Williamsport,* Aero Service, Electron Tube; *York,* Cole Office Equipment · **SOUTH CAROLINA:** *Greenville, McBee Systems* · **TENNESSEE:** *Johnson City,* McBee Systems; *Memphis,* Profexray · **TEXAS:** *Dallas,* Atherton; *Forth Worth,* McBee Systems, Profexray; *Lubbock,* Guidance and Control Systems; *Midland,* Western Geophysical; *San Antonio,* Business Equipment Center · **UTAH:** *Ogden,* McBee Systems; *Salt Lake City,* Data Systems, Guidance and Control Systems, McBee Systems · **VIRGINIA:** *Blacksburg,* Poly-Scientific; *Bristol,* Monroe International; *Richmond,* Business Equipment Center · **WEST VIRGINIA:** *Wheeling,* McBee Systems · **WISCONSIN:** *Appleton,* McBee Systems; *Milwaukee,* Hewitt-Robins.

## OPERATIONS IN PERSPECTIVE

| | | |
|---|---|---|
| **REVENUES FROM PRODUCTS DELIVERED AND SERVICES RENDERED** | | $1,172,233,000 |
| 36% of these revenues were generated by business equipment and supplies, 35% by defense and space systems, and 29% by industrial and professional products and services | | |
| **COST OF DOING BUSINESS** | | |
| Employment costs | | $ 510,422,000 |
| Salaries and wages paid to our 75,900 employees, including pension, group insurance, social security and other employee benefits | | |
| Outside purchases | | 494,283,000 |
| Payments to other companies for the purchase of materials and services; for insurance, interest and other expenses of doing business | | |
| Facility costs | | 60,921,000 |
| Maintenance, repairs, rents and that portion of original cost of facilities and equipment allocated to current year's operations | | |
| | | 1,065,626,000 |
| **DISTRIBUTION OF EARNINGS** | | |
| Federal, state, local and foreign income, business and property taxes | | 50,993,000 |
| Dividends paid to holders of preferred stock | $ 1,599,000 | |
| Earnings reinvested by our 102,000 shareholders to finance continued growth | 54,015,000 | 55,614,000 |
| | | $1,172,233,000 |

## HIGHLIGHTS OF TEN YEARS' OPERATIONS

*As reported in the Company's annual reports* — *Fiscal Years Ended July 31*

| | 1966 | 1965 | 1964 |
|---|---|---|---|
| Operating Results | | | |
| Sales and service revenues | $1,172,233,328 | $915,573,929 | $686,135,497 |
| Earnings before taxes on income | 96,212,024 | 71,539,247 | 56,151,444 |
| Federal and foreign taxes on income | 40,597,821 | 31,787,234 | 26,384,123 |
| Net earnings | 55,614,203 | 39,752,013 | 29,767,321 |
| Per share outstanding at year end, combining preference and common shares | 2.25* | | |
| Per common share outstanding at year end** | | 1.68 | 1.32 |
| Depreciation | 26,577,000 | 22,998,000 | 16,780,000 |
| Financial Position (Year-End) | | | |
| Net working capital | $ 320,364,523 | $235,752,097 | $198,260,860 |
| Property, plant and equipment—at cost | 278,666,273 | 246,306,480 | 175,228,276 |
| Accumulated depreciation | 110,438,942 | 89,427,211 | 70,560,357 |
| Net property, plant and equipment | 168,227,331 | 156,879,269 | 104,667,919 |
| Total assets | 742,535,485 | 630,023,274 | 423,697,443 |
| Shareholders' investment | 308,879,441 | 231,998,008 | 154,749,892 |
| General Statistics (Year-End) | | | |
| Shares of common stock outstanding** | 20,470,552 | 22,420,225 | 22,080,702 |
| Shares of preferred stock outstanding | 169,292 | 888,905 | 463,681 |
| Shares of preference stock outstanding | 3,989,239 | | |
| Stock dividends on common stock | 2½% | 2½% | 2½% |
| Stock splits of common stock | Two for one | | |
| Number of shareholders of record: | | | |
| Common | 78,744 | 59,009 | 57,323 |
| Preferred | 4,346 | 16,175 | 10,203 |
| Preference | 35,703 | | |
| Number of employees | 75,900 | 65,500 | 46,900 |

*The above tabulations summarize the company's financial statements as contained in its annual reports for each of the years 1957 through 1966, which include 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, operating results would have been as follows:*

| | Sales and Service Revenues | Net Earnings | Earnings Per Common Share |
|---|---|---|---|
| 1965 | $933,825,000 | $39,322,000 | $1.66 |
| 1964 | 721,004,000 | 30,352,000 | 1.34 |
| 1963 | 624,494,000 | 24,339,000 | 1.06 |
| 1962 | 498,563,000 | 18,811,000 | .82 |

| 1963 | 1962 | 1961 | 1960 | 1959 | 1958 | 1957 |
|---|---|---|---|---|---|---|
| $553,146,239 | $393,807,709 | $250,114,456 | $187,761,242 | $125,525,561 | $83,155,473 | $28,130,603 |
| 43,796,403 | 30,849,499 | 19,687,457 | 15,365,182 | 10,805,756 | 7,044,437 | 3,232,493 |
| 20,500,296 | 14,533,547 | 9,529,134 | 7,910,328 | 5,851,725 | 3,342,234 | 1,426,000 |
| 23,296,107 | 16,315,952 | 10,158,323 | 7,454,854 | 4,954,031 | 3,702,203 | 1,806,493 |
| 1.06 | .76 | .51 | .38 | .29 | .22 | .16 |
| 11,467,000 | 8,527,000 | 5,131,267 | 3,213,720 | 2,235,128 | 2,090,083 | 693,218 |
| $151,350,137 | $113,478,440 | $ 73,631,064 | $ 53,846,309 | $ 38,741,071 | $23,117,831 | $ 6,731,958 |
| 140,975,286 | 106,787,138 | 60,860,252 | 41,545,708 | 29,633,695 | 22,781,070 | 7,277,766 |
| 55,085,040 | 43,820,326 | 22,987,124 | 17,563,971 | 11,850,224 | 7,915,605 | 1,939,535 |
| 85,890,246 | 62,966,812 | 37,873,128 | 23,981,737 | 17,783,471 | 14,865,465 | 5,338,231 |
| 354,945,287 | 269,491,286 | 172,771,125 | 119,004,373 | 83,254,170 | 57,750,861 | 16,823,383 |
| 121,967,925 | 102,934,058 | 63,730,972 | 50,568,249 | 34,546,600 | 27,994,799 | 7,785,419 |
| 21,850,579 | 21,342,696 | 19,769,200 | 19,290,814 | 16,664,368 | 16,084,241 | 11,354,193 |
| 2½% | 2½% | 2½% | | 2½% | | |
| Two for one | | | Two for one | | | |
| 43,417 | 32,755 | 21,936 | 16,322 | 8,589 | 5,801 | 4,500 |
| 43,000 | 37,700 | 23,000 | 17,400 | 12,400 | 8,600 | 2,700 |

*Litton's new convertible preference stock was first issued in March 1966. The earnings per share have been computed on the basis of the number of common shares that would have been outstanding, assuming full conversion of the preference stock, at July 31, 1966.

**Adjusted for stock dividends and stock splits.

## CONSOLIDATED STATEMENTS OF EARNINGS

| | *Year Ended July 31, 1966* | *Year Ended July 31, 1965* |
|---|---|---|
| Sales and service revenues | $1,172,233,328 | $933,825,429 |
| Costs and expenses (including depreciation of $26,577,000 and $23,193,000): | | |
| Cost of sales | 851,546,658 | 680,850,986 |
| Selling, general and administrative | 214,751,429 | 174,552,134 |
| Interest | 9,723,217 | 7,684,040 |
| | 1,076,021,304 | 863,087,160 |
| Earnings before taxes on income | 96,212,024 | 70,738,269 |
| Federal and foreign taxes on income | 40,597,821 | 31,415,807 |
| Net earnings | $ 55,614,203 | $ 39,322,462 |

*The 1965 data has been revised to include the operations of companies acquired in 1966 in poolings of interests. Sales and earnings of Litton for 1965 were $915,573,929 and $39,752,013.*



*See notes to financial statements.*

## CONSOLIDATED BALANCE SHEETS

| ASSETS | *July 31, 1966* | *July 31, 1965* |
|---|---|---|
| **CURRENT ASSETS:** | | |
| Cash, including certificates of deposit and treasury bills | $ 37,109,511 | $ 25,544,944 |
| Accounts receivable | 238,502,403 | 204,405,714 |
| Inventories, at lower of cost or market, less progress billings of $88,201,223, and in 1965 $54,098,103 | 230,207,977 | 191,539,286 |
| Prepaid expenses | 7,433,951 | 7,922,843 |
| Total Current Assets | 513,253,842 | 429,412,787 |
| **PROPERTY, PLANT, AND EQUIPMENT**—See page 50 | 168,227,331 | 158,348,221 |
| **INVESTMENTS AND OTHER ASSETS**—See page 50 | 61,054,312 | 51,903,293 |
| | $742,535,485 | $639,664,301 |

| LIABILITIES AND SHAREHOLDERS' INVESTMENT | | |
|---|---|---|
| **CURRENT LIABILITIES:** | | |
| Notes payable to banks | $ 2,140,643 | $ 27,108,811 |
| Accounts payable | 101,975,209 | 93,174,041 |
| Payrolls and related expenses | 36,004,199 | 34,146,251 |
| Federal and foreign taxes on income | 50,037,856 | 34,283,763 |
| Current portion of long-term liabilities and debentures | 2,731,412 | 2,202,115 |
| Total Current Liabilities | 192,889,319 | 190,914,981 |
| **LONG-TERM LIABILITIES** (Note C) | 145,151,997 | 106,781,227 |
| **DEFERRED FEDERAL TAXES ON INCOME** | 17,068,618 | 14,198,987 |
| **DEFERRED SERVICE CONTRACT AND OTHER INCOME** | 20,649,110 | 13,895,872 |
| **CONVERTIBLE SUBORDINATED DEBENTURES** (Note D) | 57,897,000 | 78,879,600 |
| **SHAREHOLDERS' INVESTMENT**—See page 50 (Note E) | 308,879,441 | 234,993,634 |
| | $742,535,485 | $639,664,301 |

*See notes to financial statements.*

## PROPERTIES, INVESTMENTS, AND SHAREHOLDERS' INVESTMENT

| | *July 31, 1966* | *July 31, 1965* |
|---|---|---|
| **PROPERTY, PLANT AND EQUIPMENT**—at cost: | | |
| Land | $ 9,041,642 | $ 9,109,548 |
| Buildings | 74,033,422 | 72,028,104 |
| Machinery and equipment | 195,591,209 | 168,470,396 |
| | 278,666,273 | 249,608,048 |
| Accumulated depreciation | 110,438,942 | 91,259,827 |
| | $168,227,331 | $158,348,221 |
| **INVESTMENTS AND OTHER ASSETS:** | | |
| Equity in unconsolidated finance subsidiaries (Note B) | $ 20,687,195 | $ 16,293,240 |
| Long-term investments—at cost | 10,472,445 | 14,447,048 |
| Excess of cost over related net assets of businesses purchased | 27,739,113 | 17,509,895 |
| Other assets, including patents | 2,155,559 | 3,653,110 |
| | $ 61,054,312 | $ 51,903,293 |
| **SHAREHOLDERS' INVESTMENT** (Note E): | | |
| Capital stock: | | |
| Voting preference, par value $2.50 a share, issuable in series: | | |
| Authorized 8,000,000 shares | | |
| Convertible participating series issued 4,025,941 shares less 36,702 shares in treasury | $ 9,973,098 | |
| Voting preferred, convertible, cumulative, par value $5 a share, issuable in series: | | |
| Authorized 3,000,000 shares | | |
| Series A issued 169,292 shares, and 936,124 shares less 18,351 shares in treasury | 846,460 | $ 4,588,865 |
| Common, par value $1 a share: | | |
| Authorized 39,000,000 shares | | |
| Issued 20,470,552 shares, and 11,339,180 shares less 387,906 shares in treasury | 20,470,552 | 10,951,274 |
| Additional paid-in capital | 153,059,069 | 119,811,386 |
| Earnings retained in the business (less $100,462,478 and $71,335,163 transferred to paid-in capital for stock dividends paid) | 124,530,262 | 99,642,109 |
| | $308,879,441 | $234,993,634 |

*See notes to financial statements.*

## CONSOLIDATED STATEMENT OF EARNINGS RETAINED IN THE BUSINESS

*Year Ended July 31, 1966*

| | | |
|---|---|---|
| Balance at beginning of year | | $ 99,642,109 |
| Net earnings for the year | | 55,614,203 |
| | | 155,256,312 |
| Deduct: | | |
| Cash dividends on preferred stock—$3 a share | $ 1,598,735 | |
| Market value of 2½% stock dividend | 29,127,315 | 30,726,050 |
| Balance at end of year | | $124,530,262 |

## CONSOLIDATED STATEMENT OF ADDITIONAL PAID-IN CAPITAL

*Year Ended July 31, 1966*

| | | |
|---|---|---|
| Balance at beginning of year | | $119,811,386 |
| Excess of market value of stock dividend over par value of common stock issued | | 28,701,186 |
| Excess of principal amount of debentures and par value of preferred and preference stocks converted over par value of common stock issued | | 20,123,431 |
| | | 168,636,003 |
| Deduct: | | |
| Transfer to common stock in connection with two-for-one stock split | $11,450,956 | |
| Excess of par value of preference stock issued over par value of common and preferred stocks exchanged therefor | 4,125,978 | 15,576,934 |
| Balance at end of year | | $153,059,069 |



*See notes to financial statements.*

## NOTES TO FINANCIAL STATEMENTS

*Year Ended July 31, 1966*

**NOTE A**—Principles of Consolidation

The accounts of the Company and its wholly-owned subsidiaries (excluding its finance subsidiaries) are included in the accompanying financial statements.

During the year ended July 31, 1966, the Company purchased a number of businesses, the operations of which are included from dates of acquisition.

Also during the year the Company acquired the net assets of other businesses which have been accounted for as poolings of interests. The 1965 financial statements have been revised to include these businesses.

**NOTE B**—Equity in Unconsolidated Finance Subsidiaries

The Company's equity in its wholly-owned finance subsidiaries is stated at cost, represented by investments and advances, and undistributed earnings of $1,533,205 at July 31, 1966. These subsidiaries had total assets of $77,617,495 and liabilities to banks and others of $56,930,300 at July 31, 1966.

**NOTE C**—Long-term Liabilities

Long-term liabilities at July 31, 1966 consisted of the following:

| | |
|---|---|
| Notes payable to insurance companies: | |
| Due to 1984 with interest from 3⅜% to 4⅞% | $ 90,210,401 |
| Due to 1977 with interest from 5% to 6% | 3,413,223 |
| Notes payable to banks: | |
| Due to 1980 with interest from 3% to 4¾% | 37,017,889 |
| Due to 1978 with interest from 5½% to 6½% | 1,319,331 |
| Miscellaneous debt due to 1984 with average interest of 4¼% | 14,982,565 |
| | 146,943,409 |
| Less current portion | 1,791,412 |
| | $145,151,997 |

The principal maturities due during each of the next five fiscal years is as follows:

| | |
|---|---|
| Year ended July 31, 1967 | $ 1,857,000 |
| Year ended July 31, 1968 | 1,880,000 |
| Year ended July 31, 1969 | 9,219,000 |
| Year ended July 31, 1970 | 6,392,000 |
| Year ended July 31, 1971 | 41,823,000 |

The Company has complied with its agreements to maintain specified ratios of assets to debt and shareholders' investment to debt.

**NOTE D**—Convertible Subordinated Debentures

Convertible subordinated debentures at July 31, 1966 were as follows:

| | |
|---|---|
| 3½% due April 1, 1987, issued 1962, 1963, 1964, and 1965 | $ 50,512,000 |
| 5¼% due December 1, 1974, issued 1959 | 4,095,000 |
| 4¾% due June 1, 1974, issued 1959 | 4,230,000 |
| | 58,837,000 |
| Less current portion | 940,000 |
| | $ 57,897,000 |

The debentures are convertible into common stock of the Company at conversion prices as follows: 3½% debentures—$40 a share until April 1, 1972, $42.50 a share until April 1, 1982, $45 a share thereafter; 5¼% debentures—$20 a share; 4¾% debentures—$16.25 a share. These conversion prices are subject to antidilution provisions.

The Company has agreed to retire annually principal amount of debentures as follows: 3½% debentures—$2,819,000 commencing April 1, 1972; 5¼% debentures—$600,000 commencing December 1, 1968; 4¾% debentures—$470,000. Required annual retirements of the 3½% debentures have been met through April 1, 1978.

The debentures are subordinated to all existing debt and future debt of the Company with limited exceptions. The Company has complied with the terms of the debentures.

**NOTE E**—Shareholders' Investment

On March 10, 1966 shareholders of the Company exchanged 2,526,999 shares of common stock for an equal number of shares of new Cumulative Convertible Preference Stock, Participating Series, and 731,171 shares of Series A $3 Cumulative Convertible Preferred Stock for 1,462,342 shares of new Preference Stock, Participating Series.

The new preference stock is initially convertible into one share of common stock. This conversion rate increases by 3.09% in each of the years 1967 to 1989 and, additionally, is subject to antidilution provisions. If a cash dividend is paid on common stock, each share of preference stock is entitled to receive a cash dividend in an amount equal to the dividend per common share times the then applicable preference stock conversion rate. The preference stock is redeemable at any time after January 31, 1976 at prices ranging from $67.75 in 1976 to $100.95 in 1989 and thereafter. The Company has the right, at its option, each calendar year beginning with 1967 to redeem shares of preference stock by offering to each preference shareholder the right to call upon the Company to redeem up to 3% of his shares at prices ranging from $51.65 in 1967 to $100.95 in 1989 and thereafter. In the event of liquidation each preference share is entitled to receive $25 a share plus accrued dividends.

The preferred stock is currently convertible into common stock at the rate of two shares of common stock for one share of preferred stock, and is redeemable on or after April 1, 1972 at $100 a share plus accrued dividends. In the event of liquidation each preferred share is entitled to receive $50 a share plus accrued dividends.

At July 31, 1966 there were reserved 1,727,858 common shares for conversion of debentures, 338,584 common shares for conversion of preferred stock, and 3,989,239 common shares for conversion of preference stock.

Under certain acquisition agreements capital stock may be issued as additional consideration for businesses acquired. The number of shares to be issued is dependent, among other things, upon future earnings of acquired businesses and future market value of Litton stock. Based upon current estimates, the maximum number which could be issued as additional consideration is approximately 198,000 common shares and 4,000 preferred shares.

On August 16, 1966 the Board of Directors declared a common stock dividend of 2½% payable November 8, 1966 to holders of record of such common stock at the close of business September 30, 1966. This transaction has not been reflected in the financial statements.

**NOTE F**—Lease Obligations

Annual rentals under long-term leases expiring between 1969 and 1999 are approximately $6,044,000 plus property taxes and insurance in some instances.

**TOUCHE, ROSS, BAILEY & SMART**

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

September 29, 1966

We have examined the accompanying consolidated balance sheet of Litton Industries, Inc. and subsidiary companies as of July 31, 1966, 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 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, 1966, 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

# INDEX

# INDEX

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**CORPORATE OFFICES**

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Trust Company
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New York, New York 10015

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Los Angeles, California 90013