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RICHARD W. MILLAR, *Chairman of the Board*

JOHN K. NORTHROP, *President and Director*

CLAUDE N. MONSON, *Vice President, General Manager and Director*

ROLAND J. PAGEN, *Treasurer, Controller and Director*

HENRY WALLACE COHU, *Director and Assistant Secretary*

LAMOTTE T. COHU, *Director*

WILLIAM C. MCDUFFIE, *Director*

EDWIN PEDERSON, *Director*

JOHN O'MELVENY, *Director*

B. G. REED, *Vice-President and Assistant General Manager*

JOHN W. MYERS, *Vice-President and Director of Sales*

GEORGE GORE, *Secretary and Assistant General Counsel*

A. C. MORGAN, *Assistant Secretary and Assistant Director of Sales*

S. W. TOWLE JR., *Assistant Secretary and Washington Representative*

L. F. HARMAN, *Assistant Secretary and Dayton Representative*

Stock Transfer Agents Bank of America National Trust and Savings
 Association, Los Angeles
 The Chase National Bank of the City of
 New York

Registrars Security-First National Bank of Los Angeles
 Bank of New York, New York

Listing of Securities New York Curb Exchange
 Los Angeles Stock Exchange

General Counsel O'Melveny & Myers, Los Angeles

AFFILIATES AND DIVISIONS

NORTHROP-HENDY CO.

JOHN A. McCONE, *Chairman of the Board*
JOHN K. NORTHROP, *President and Director*
THOMAS H. QUAYLE, *Vice-President, General Manager and Director*
LAMOTTE T. COHU, *Director*
J. S. SIDES, *Director*
W. C. RYAN, *Director*
GEORGE GORE, *Secretary*
CLAUDE N. MONSON, *Treasurer*
JOHN OLIVER, *Assistant Secretary and Assistant Treasurer*
JOSEPH TESCHER, *Assistant Secretary and Assistant Treasurer*

NORTHROP AERONAUTICAL INSTITUTE

J. L. MCKINLEY, *Managing Director*
H. W. HARTLEY, *Assistant Director*

A MESSAGE FROM YOUR MANAGEMENT:

Submitted herewith is the Annual Report of Northrop Aircraft, Inc. for the year ended July 31, 1947.

RESULT FROM OPERATIONS

The following is a brief summary of the income and expenses for the year just ended:

Income:

Sales	\$29,423,032.84
Other income	<u>40,677.14</u>
Total Income	\$29,463,709.98

Expenses:

Manufacturing and other expenses	<u>27,662,466.08</u>
Profit before taxes on income and before provision for loss on investment in and advances to Salsbury Motors, Inc.	\$ 1,801,243.90
Federal taxes on income—estimated \$639,000.00	
Provision for loss on investment in and advances to Salsbury Motors, Inc.	<u>921,670.58</u>
	<u>1,560,670.58</u>
NET PROFIT TRANSFERRED TO SURPLUS	\$ 240,573.32

Surplus Adjustment:

Recent favorable decisions made by the Board of Contract Appeals in connection with certain contract costs, which had been disallowed in prior years, made it possible to reduce the reserves provided for such items resulting in a net credit to surplus after taxes of	<u>23,958.76</u>
Total Increase in Surplus During the Year	<u>\$ 264,532.08</u>

INCREASE IN WORKING CAPITAL

The working capital of your Company at July 31, 1947 was \$3,397,368.57 as compared with \$3,085,541.93 at July 31, 1946, an increase of \$311,826.64.

The current assets amounted to	\$7,231,321.65
And the current liabilities were	<u>3,833,953.08</u>
Leaving a net working capital of	<u>\$3,397,368.57</u>

The ratio of current assets to current liabilities at July 31, 1947 was 1.9 to 1 as compared with 2.3 to 1 at July 31, 1946.

The increase in working capital is briefly accounted for as follows:

Increases in working capital

Profit, including surplus adjustments, and before deducting depreciation and provision for loss on investment in and advances to Salsbury Motors, Inc. and Northrop Foundry, Inc.	\$1,424,239.08
Cash and other assets received from Northrop Foundry, Inc.	225,063.33
Decrease in claim against U. S. Government for tax refund	<u>59,545.08</u>
Total	<u>\$1,708,847.49</u>

Decreases in working capital

Increase in assets:

Plant and equipment—net	\$ 63,351.68
Prepaid and deferred charges	75,800.94
Deferred development	476,905.57
Northrop-Hendy, Inc. advances	10,000.00
Miscellaneous investments	<u>301.42</u>
Total Increase in Assets	\$626,359.61

Salsbury Motors, Inc.:

additional advances	468,596.17
Decrease in deferred income	248,307.95
Decrease in depreciation reserve relating to plant and equipment disposed of during the year	<u>53,757.12</u>

Total	<u>1,397,020.85</u>
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NET INCREASE IN WORKING CAPITAL	<u>\$ 311,826.64</u>
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ANALYSIS OF CURRENT ASSETS

The current assets amounting to \$7,231,321.65 consist of the following items:

	<u>Amount</u>	<u>Percent to Total</u>
Cash	\$2,620,397.18	36.24%
Accounts receivable from and work in process for the U. S. Government	3,939,958.99	54.48
Accounts receivable \$ 910,422.31		
Unreimbursed costs and fees	2,385,005.24	
Inventories in process	395,488.79	
Tax refund claim	<u>249,042.65</u>	
Accounts receivable from and work in process for others	670,965.48	9.28
Trade accounts receivable . . . \$	151,372.69	
Inventories in process	35,751.44	
Materials and supplies	<u>483,841.35</u>	
Total Current Assets	<u>\$7,231,321.65</u>	<u>100.00%</u>

It will be noted from the above analysis that 90.72 percent of the current assets is cash and amounts due and/or payable to your company by the United States Government.

BANK LOAN

Your company had no bank loans outstanding on July 31, 1947 and there is none outstanding at the date of this report.

Your company has a credit agreement dated December 31, 1946, with commitments by four participating banks, providing for a line of credit up to \$3,000,000.00. This agreement expires on December 31, 1947. Prior to that date negotiations will be commenced with the banks for a continuation of this credit agreement for the year ending December 31, 1948.

BOOK VALUE PER SHARE

The following is an analysis of the book value per share of Northrop stock outstanding:

	July 31, <u>1947</u>	July 31, <u>1946</u>
Net working capital	\$ 7.57	\$ 6.87
Other assets	1.89	3.54
Property, plant and equipment	2.51	2.75
Deferred charges	<u>2.66</u>	<u>1.44</u>
Sub-total	\$14.63	\$14.60
Less deferred credits	<u>-0-</u>	<u>.55</u>
Total	<u>\$14.63</u>	<u>\$14.05</u>

CAPITAL STRUCTURE

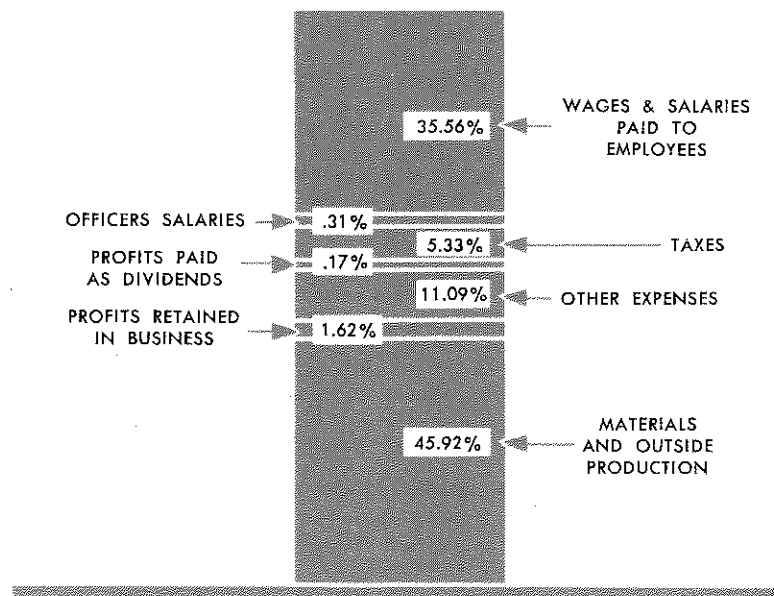
There were no changes in the capital structure during the year ended July 31, 1947.

BACKLOG

Your company's backlog of orders stood at \$23,905,000, on July 31, 1947. This does not include the backlog for Northrop Aeronautical Institute.

DISTRIBUTION OF SALES DOLLAR

(August 1, 1942 to July 31, 1947)



FACILITIES

The company operates facilities with a total area of 1,148,000 square feet. These include a fully-integrated and equipped aircraft manufacturing plant and office building, and the plant, buildings and equipment of Northrop Aeronautical Institute, all owned by Northrop Aircraft and unencumbered. These company-owned facilities total 738,000 square feet.

In addition to company-owned property, two other plants, totaling 410,000 square feet, are operated by your company, because of continuing government business, under lease from the Reconstruction Finance Corporation.

Both company-owned and leased facilities are located at Northrop Field, Hawthorne, California.

PERSONNEL

In May, 1947, LaMotte T. Cohe, one of the founders of Northrop Aircraft, resigned as chairman of the board and general manager to accept the presidency of Transcontinental and Western Air, Inc. Loss of Mr. Cohe in these capacities was ameliorated by the fact that he remains as a director.

Claude N. Monson, vice-president and director of finance, who has been associated with the company since its inception, was elected general manager.

Roland J. Pagen, treasurer and controller, was elected director to fill the vacancy created by the resignation of Gage H. Irving as director and vice-president. Mr. Irving, one of the founders of Northrop Aircraft, had long wished to retire to his ranch.

The company's favorable record is largely due to the loyalty and conscientious effort of the more-than-5,000 people who make up Northrop Aircraft and whose friendly understanding of our mutual problems has assured smooth and continuous operation. It is our desire to continue to justify this confidence and loyalty.

THE FLYING WINGS

Your company's world leadership in the field of all-wing airplanes appears undisputed. While engaged in a number of other important developments possessing interesting long-range potentialities, the all-wing projects are considered of special value.

Test flights of two of the propeller-driven Northrop B-35 Flying Wings have so far borne out the predictions long made by Northrop's engineering and design group. Briefly, results indicate that the all-wing design, which incorporates the functions of a satisfactory flying machine within the outline of the main supporting airfoil, develops a higher ratio of maximum lift to minimum drag, or, in lay words, much higher efficiency. By eliminating the fuselage, tail surfaces and engine nacelles and incorporating everything in the wing itself Northrop has made a close approach to the ideal airplane, in which every part of the plane contributes to lift in return for the drag it causes.

The result is performance believed to be about 25 percent better than can be achieved with comparable conventional planes. This can be translated into a considerable advantage in speed, range or economy, and indicates a basic superiority which ultimately may be expected to result in wide adoption of the all-wing design.

Northrop currently is engaged in building 15 of the 172-foot span Flying Wings for the Army. Two of these are powered with jet

engines. It seems reasonable to expect that the armed services will show continued interest in this design as its advantages are demonstrated further.

Patents covering several fundamental elements of the Flying Wings were issued to your company during the fiscal year. The term "Flying Wing" also was registered as a trademark by Northrop.

THE PIONEER

Development of the Northrop Pioneer was virtually completed at the close of the fiscal year.

The Pioneer is now being demonstrated in this country and probably will be shown in Central and South America during the winter. Because of exceptionally short landing and take-off characteristics, the Pioneer can use fields about one half the size required for other airplanes of comparable capacity. Its utility potential is high, and it is of much interest to the operator who needs an economical transport of 25,000 pounds gross weight for short haul, local service cargo or passenger carrying, here or abroad.

The cost of the Pioneer project, about \$780,810 is included in deferred development expense in the accompanying balance sheet.

NORTHROP AERONAUTICAL INSTITUTE

Northrop Aeronautical Institute has become recognized as one of the outstanding technical schools in the United States. It has received approval of the Veterans Administration for training veterans under the G. I. Bill of Rights; approval by the U. S. Department of Justice, Immigration and Naturalization Service, for attendance by non-quota immigrant students; approval by and membership in the National Council of Technical Schools, Washington, D. C.; approval by Civil Aeronautics Administration.

Enrollment has risen rapidly until now more than 1000 students representing every state in the union are attending classes in aircraft engineering, design, manufacture and maintenance. It has been necessary to increase the size of the facility, to a total of 79,000 square feet of building area for laboratory, shops and classrooms.

The staff has grown to about 120 persons, including technical training specialists. This division is now operating at a profit.

PROSTHESIS DEVELOPMENT

Northrop's Prosthesis Development Division is a non-profit program, which will be carried on as long as it can be of service to the U.S. government in developing more efficient artificial limbs for the handicapped. Costs of this program are borne by the government.

The project is currently devoted to further improvement of arms, hooks and attachments for both above-elbow and below-elbow amputees. An outside manufacturer is now engaged in producing the Northrop-developed artificial arm and several limb manufacturers have started a program to distribute them on a national basis.

Northrop also has carried on considerable research and work on an improved artificial leg, featuring a plastic suction socket and a hydraulic snubber-type knee lock. Seven test models of this leg are now in use, although no work is now being done on this program.

A new contract for prosthesis development will carry the program forward until June 30, 1948. As in the past, Northrop's work will be concentrated on research, development and testing, to bring the product up to the manufacturing stage.

Prosthesis development may be considered a part of your company's contribution both to the war effort and to the partial payment of the debt owed America's veterans.

NUCLEAR ENERGY RESEARCH

Your company is currently deeply engaged in research in new fields of nuclear energy.

A Northrop group of about 12 nuclear scientists is currently exploring several phases of this research. Northrop has loaned men on a consulting basis to the Oak Ridge NEPA and power pile projects, and eight of your company's experts were placed on the recent NEPA educational program. We also are working closely with physicists at the University of California at Los Angeles, where a program is in progress.

Little can be said of the nuclear energy research because of military restrictions. It is, however, long-range and is allied closely with your company's interest in aircraft and guided missiles.

GUIDED MISSILES

Your company is engaged in guided missile research under government contract. Most experts hold that such missiles—unmanned, automatically guided and expendable—are the key to the "push button" war of the future. These complex projects hold great interest but naturally are shrouded in secrecy.

Major progress has been made in this development, the engine research being carried forward in conjunction with Northrop-Hendy.

Problems involved have taken the company into a new field, and the progress has been such that it is now believed that Northrop has evolved some most promising solutions. More than \$4,000,000 has been allocated by the Army Air Forces to the project to date.

NORTHROP-HENDY CO.

Northrop-Hendy Co., owned jointly by Northrop Aircraft, Inc., and Joshua Hendy Corporation, made further progress during the fiscal year in development of the "Turbodyne," a powerful gas turbine, under Army contracts.

First full-scale models of the Turbodyne have a calculated rating of 10,000 horsepower. The current test model is designed for use in aircraft, most difficult of all installations because of weight and size limitations. Research also is being directed toward application of these high-performance gas turbines in railroad locomotives, stationary power installations and marine units.

In late September, Northrop was notified by the Air Materiel Command that a reduced engine development budget would halt continuance of the aircraft project beyond the stage called for by presently-committed funds, which are sufficient to sustain the project until May, 1948.

Your management believes the action may be reconsidered, in light of impressive test data now being obtained which indicate a valuable return to be gained from continuing the project.

SALSBURY MOTORS, INC.

This company, a wholly-owned subsidiary, manufactured small engines, automatic clutches and drives, motor scooters, and industrial trucks. Although losses were anticipated during the company's early production period, operating deficits were unexpectedly large, due to a variety of factors.

Every effort was made to place this company on a profitable basis during the fiscal year. In spite of a substantial increase in production and sales and a marked decrease in production costs per unit of articles manufactured, it continued to fight a losing battle against high costs and shortages of material and parts with the result that a substantial loss was incurred during the period under review.

Salsbury Motors was unable to arrange for additional finances to meet its obligations and, therefore, filed a petition under Chapter XI of the Bankruptcy Act on August 20, 1947. On September 9, 1947, a receiver was appointed to handle the affairs of this subsidiary under the jurisdiction of the court. For this reason, the financial statement of Salsbury Motors, is not consolidated with that of the parent company.

The accompanying financial statement of Northrop Aircraft, Inc., gives effect to the total estimated loss that will be sustained as a result of its investment in and advances to this subsidiary.

NORTHROP FOUNDRY, INC.

On December 31, 1946, this subsidiary sold all its equipment together with inventories and supplies for a consideration slightly in excess of the book value on that date. On January 31, 1947, Northrop Aircraft, Inc., took over the remaining net assets.

On July 28, 1947, this subsidiary was dissolved and the accompanying financial statement of Northrop Aircraft, Inc., gives effect to such dissolution.

FUTURE PROSPECTS

In common with that of many other aircraft companies, Northrop Aircraft's future is closely linked with the military air power program of this nation. The extent of the government's airplane procurement largely dictates this company's activities in research, development and production.

Northrop's relative position in the aircraft industry depends upon its continuing ability to compete successfully in the conception, design and construction of airpower components. Your company's engineering department has pioneered in many new aircraft developments. Its production techniques are outstanding as well. Production of the Flying Wings, research in the fields of guided missiles, nuclear energy and secret projects are valuable contributions to this nation. There is reason to believe, therefore, that Northrop will continue to receive important military assignments.

Your company believes that the protection of the people of the United States through service to their government is still the primary purpose of the aircraft industry. To that purpose your management plans to continue devoting whatever is needed of its technical knowledge, productive ability, spirit and loyalty.

By order of the Board of Directors

Richard W. Miller
Chairman of the Board

John K. Northrop
President

Hawthorne, California
October 15, 1947

ACCOUNTANTS' REPORT

Board of Directors,
Northrop Aircraft, Inc.,
Hawthorne, California.

We have examined the balance sheet of Northrop Aircraft, Inc., as of July 31, 1947 and the statements of profit and loss and surplus for the year then ended, have reviewed the system of internal control and the accounting procedures of the Company and, without making a detailed audit of the transactions, have examined or tested accounting records and other supporting evidence, by methods and to the extent we deemed appropriate. Our examination was made in accordance with generally accepted auditing standards applicable in the circumstances and included all procedures which we considered necessary. It was found impracticable to confirm by direct communication amounts receivable from the United States Government, with respect to which we were able to satisfy ourselves by other auditing procedures.

In our opinion, the accompanying balance sheet and related statements of profit and loss and surplus present fairly the position of Northrop Aircraft, Inc. at July 31, 1947 and the results of its operations for the year, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

ERNST & ERNST
Certified Public Accountants

Los Angeles, California
September 30, 1947

BALANCE SHEET*
NORTHROP AIRCRAFT, INC.
 July 31, 1947

ASSETS

CURRENT ASSETS

Cash on demand deposit and on hand		\$ 2,620,397.18
Trade accounts receivable (U.S. Government \$910,422.31)—Note C		1,061,795.00
Cost-plus-fixed-fee contracts:		
Unreimbursed costs and fees	\$ 2,773,005.24	
Less reserve for adjustments	<u>388,000.00</u>	2,385,005.24
Inventories—at lower of cost (first-in, first-out) or market:		
Fixed-price contracts in process	\$ 901,414.36	
Materials and supplies—Note C	<u>483,841.35</u>	
	\$ 1,385,255.71	
Less partial payments received	<u>470,174.13</u>	915,081.58
Federal and state taxes on income refundable be- cause of accelerated amortization of emergency facilities—estimated		<u>249,042.65</u>
		<u>\$ 7,231,321.65</u>

TOTAL CURRENT ASSETS

OTHER ASSETS

Investment in and advances to Salsbury Motors, Inc. (a wholly-owned subsidiary)—Note B	\$ 1,547,105.10	
Less reserve	<u>1,032,105.10</u>	
	\$ 515,000.00	
Investment in and advances to affiliate	42,500.00	
Federal and state taxes on income refundable be- cause of inability to obtain reimbursement of all costs under cost - plus - fixed - fee contracts— estimated	\$ 289,359.01	
Sundry deposits, etc.	<u>1,927.42</u>	848,786.43
PROPERTY, PLANT AND EQUIPMENT—on the basis of cost		
Land, buildings, machinery and equipment	\$ 3,746,357.55	
Less reserves for depreciation and amortization	<u>2,618,170.29</u>	1,128,187.26
DEFERRED CHARGES		
Insurance and taxes	\$ 149,687.20	
Deferred development—Note A	938,444.07	
Other deferred charges	<u>105,380.05</u>	1,193,511.32
		<u>\$10,401,806.66</u>

BALANCE SHEET*
NORTHROP AIRCRAFT, INC.
 July 31, 1947

LIABILITIES, CAPITAL STOCK AND SURPLUS

CURRENT LIABILITIES

Accounts payable	\$ 1,818,561.61
Wages and salaries payable	809,663.02
Payroll deductions for taxes	197,027.87
Accrued taxes (other than taxes on income)	267,797.31
Federal taxes on income—estimated	<u>740,903.27</u>

TOTAL CURRENT LIABILITIES \$ 3,833,953.08

CAPITAL STOCK AND SURPLUS

Capital stock:

Common stock—par value \$1.00 per share;
 Authorized 1,000,000 shares—issued and out-
 standing 448,889 shares \$ 448,889.00

Surplus:

Paid-in surplus	\$ 1,379,745.00
Earned surplus—Notes A and D. <u>4,739,219.58</u>	<u>6,118,964.58</u>

6,567,853.58

*Reasons for not presenting consolidated statements
 are set forth in Note B

See Notes to Financial Statements

\$10,401,806.66

PROFIT AND LOSS STATEMENT

NORTHROP AIRCRAFT, INC.

Year ended July 31, 1947

Net sales at fixed prices and amounts receivable under cost - plus - fixed - fee contracts including pro rata portion of fee		\$28,818,912.99
Income of Northrop Aeronautical Institute		604,119.85
Other income:		
Interest earned		3,467.71
Sundry other income		<u>37,209.43</u>
		\$29,463,709.98
Less:		
Manufacturing and other costs applicable to operations at fixed prices and to billings under cost-plus-fixed-fee contracts	\$26,568,275.14	
Expenses of Northrop Aeronautical Institute	499,434.01	
Administrative and general expenses	557,826.05	
Interest expense	23,391.19	
Loss (\$247,994.71) on dissolution of Northrop Foundry, Inc., a wholly-owned subsidiary, dissolved during the year less amount (\$234,455.02) charged against profits of the preceding year	<u>13,539.69</u>	<u>27,662,466.08</u>
PROFIT BEFORE TAXES AND SPECIAL PROVISION FOR LOSS		\$ 1,801,243.90
Federal taxes on income—estimated	\$639,000.00	
Provision for loss on investment in and advances to Salsbury Motors, Inc., a wholly-owned subsidiary	<u>921,670.58</u>	<u>1,560,670.58</u>
NET PROFIT—NOTE A		<u>\$ 240,573.32</u>
Provisions amounting to \$224,496.73 for depreciation of plant and equipment are included above in costs and expenses.		

See Notes to Financial Statements

1801243.90
132490
240573.32

STATEMENT OF SURPLUS
NORTHROP AIRCRAFT, INC.
Year ended July 31, 1947

SELIG ALTSCHUL
aviation advisory service
25 BROAD STREET
NEW YORK 4, N. Y.

PAID-IN SURPLUS

Balance at August 1, 1946 and July 31, 1947 \$ 1,379,745.00

EARNED SURPLUS

Balance at August 1, 1946 \$ 4,474,687.50

Profit for the year 240,573.32

Adjustment of over provision in prior year for non-reimbursement of
costs under cost-plus-fixed-fee contracts, less resulting change in
taxes on income 23,958.76

Balance at July 31, 1947 \$ 4,739,219.58

See Notes to Financial Statements

NOTES TO FINANCIAL STATEMENTS

NORTHROP AIRCRAFT, INC.

Year ended July 31, 1947

NOTE A—In accordance with its established policy of capitalizing experimental and development costs, the Company has capitalized and carries as an asset under deferred charges an amount of \$780,810.35 expended in the development, for its own account, of a new trimotored airplane. Of this amount \$491,172.78 was expended during the current year and \$289,637.57 during the preceding year. No part of this development cost has been reflected as an expense or deduction in the statements of profit and loss.

NOTE B—Salsbury Motors, Inc., a wholly-owned subsidiary, initiated proceedings on August 20, 1947 under Chapter XI of the Federal Bankruptcy Act, seeking an arrangement with its creditors. Provision for loss on investment in and advances to the subsidiary has been made in the amounts of \$921,670.58 in the current period and \$110,434.52 in the preceding year. Because of the foregoing circumstances and of the fact that the Company's other subsidiary (Northrop Foundry, Inc.) was dissolved during the year, the Company has this year abandoned the making of consolidated financial statements. The consolidated balance sheet as at July 31, 1946 included the following amounts representing the Company's investment in and advances to these subsidiaries:

Northrop Foundry, Inc.	\$238,603.02
Salsbury Motors, Inc.	968,074.41

NOTE C—Included in the accounts receivable is an amount of \$18,311.50 representing an account, partly past due, owing by a corporation in which two officers of the Company are financially interested. The inventory of materials and supplies also includes an amount of \$10,943.21 usable only in work done for this customer.

NOTE D—An existing bank agreement provides, among other things, that as long as credit remains available to the Company thereunder, the Company will not, without the prior written consent of banks having at least 75% of the aggregate commitments thereunder, declare or pay dividends in excess of 50% of net earnings for the period from July 31, 1946 to date of declaration of such dividends. There were no unpaid loans under this agreement as at July 31, 1947.

NOTE E—An examination of the Company's tax returns for the period from inception of the Company to the end of the fiscal year 1945, by representatives of the Treasury Department, was in progress at the date this report is issued. There have been no indications that any substantial amounts of additional tax will be demanded in excess of those already provided on the books.