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# WILMER, CUTLER & PICKERING FARRAGUT BUILDING

900-17TH STREET, N.W.

WASHINGTON, D. C. 20006

RICHARD H. WILMER
LLOYD N. CUTLER
JOHN H. PICKERING
HUGH R. H. SMITH
J. POGER WOLLENBERG
CHAPLES C. GLOVER, III
MARSHALL HOANBLOWER
HCNRY T. RATHBUN
REUBEN CLARK
SAMUEL J. LANAHAN
WILLIAM R. PERLIR
SAMUEL A. STERN
ARNOLD M. LERMAN
ROBERT P. SIRANAHAN, JR.
MAX O. TRUIT JR

SAMUEL J. LANAHAN
WILLIAM R. PERLIR
SAMUEL A. STERN
ARNOLD M. LERMAN
ROBERT P. STRANAHAN, JR
MAX O. TRUITT, JR.
THOMAS G. WATKIN. ON
ARTHUR Z. GARDINER, JR.
DANIEL K. MAYERS
DAVID R. ANDERSON
JOHN R. HELLER, III
ALLEN H. MARRISON, JR.

EZEKIEL G, STOODARD

CABLE ADDRESS: WICRING

March 24, 1964

Communications Satellite Corporation 3029 Klingle Road, N. W. Washington, D. C. 20008

Dear Sirs:

In a letter dated March 18, 1964, the Federal Communications Commission advised you that it had "determined that any action by the Corporation purporting to reduce the amount of stock allowed to be owned by any stockholder not an authorized carrier, or any syndicate, or affiliated group of such stockholders, below the maximum limitation of 10% authorized by Section 30%(b)(3) of the Communications Satellite Act of 1962, is subject to review by the Commission to ascertain its reasonableness in light of the purposes and objectives of the Act." We interpret this to mean that the Commission considers that it has authority to disapprove or modify any such action by the Corporation, and to require the Corporation to revoke or modify such action or to defer making such action effective pending Commission review.

The provision for setting a limitation on non-carrier stock ownership below the 10% maximum specified in Section 30½(b)(3) of the Communications Satellite Act (the Act) is set forth in Section 5.02(c) of the Articles of Incorporation.

The question presented is whether the Act empowers the Commission to review and approve or disapprove action of the present Board of Directors of the Corporation, and actions of future Boards, under Section 5.02(c) of the Articles. As we have previously advised you, it is our opinion that the Commission does not have such authority under the Act.

Section 304(b)(3) of the Act reads as follows:

"(3) At no time shall any stockholder who is not an authorized carrier, or any syndicate or affiliated group of such stockholders, own more than 10 per centum of the shares of voting stock of the corporation issued and outstanding."

Section 5.02(c) of the Articles of Incorporation of the Corporation reads as follows:

"(c) For the purpose of encouraging the widest distribution of shares of Common Stock to the American public, the Board of Directors may from time to time determine a maximum percentage, not exceeding ten per centum (10%), of the shares of Common Stock issued and outstanding at any time which may be owned or held by any shareholder who is not an authorized carrier, or by any syndicate or affiliated group of such shareholders. No shareholder who is not an authorized carrier, and no syndicate or affiliated group of such shareholders, shall own or hold shares of Common Stock constituting a greater percentage of the shares of Common Stock issued and outstanding at any time than the applicable percentage so determined by the Board of Directors; provided that shares of Common Stock owned or held by any person immediately 3

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before the effective date of any such determination shall not by reason of such determination be deemed to be shares owned or held in violation of these Articles. The Board of Directors shall cause notice of any such determination to be mailed to each record holder of shares of Common Stock not less than ten (10) days prior to the effective date of such determination. The giving of any other notice of any such determination shall not be required."

By letter to the President dated January 31, 1963 the Attorney General stated that he found nothing in the Articles contrary to the provisions or inconsistent with the purposes of the Act and that, in his opinion, "the Articles are appropriately designed to achieve the objectives and to carry out the purposes of the Act. . . . " On the same date, the President formally approved the Articles of Incorporation, in accordance with Section 302 of the Act.

The initial offering of Common Stock has not yet been made. We understand that, at a meeting held on March 2, 1964, the Board of Directors of the Corporation resolved that, in connection with the initial offering, a determination should be made under Section 5.02(c) of the Articles that no non-carrier stockholder or syndicate or affiliated group of such stockholders may own more than 1% of the outstanding shares. Assuming that 10 million shares are issued at \$20 a share, this limitation in effect will mean that no non-carrier stockholder may hold more than 100,000 shares, or a total investment, computed on the basis of the issue price, of 2 million dollars. In taking this action, we understand that the Board considered

the statutory directive in Section 304(a) to conduct the initial offering in such a manner as to assure the widest distribution of the stock to the American public; the purpose of the authority conferred on the Board by Section 5.02(c) of the Articles; the fact that no limitation on the number of shares that any person could purchase in the initial offering would be meaningful if anyone were free to make additional purchases on the open market immediately thereafter; the fact that if the 1% ceiling proved to be too low the Board or a successor Board could act to increase the ceiling; and the fact that if the Board defers setting a ceiling below 10% until a later date, the later ceiling would not be effective against large holdings that had previously been accumulated.

The provision of the Act most relevant to Commission authority over stock issues and non-carrier ownership is the directive in Section 201(c)(8) that the Commission shall, as a general matter, approve all stock issues except the initial issue. The clear implication is that insofar as the terms of the initial offering are concerned, the Corporation - which means the incorporator-directors appointed by the President - should have full discretion. In this connection, it is significant that Section 302 commands the incorporator-directors to "arrange"

emphasized the responsibilities of the incorporator-directors to comply with this command promptly. The only explicit exception to the immunity of the initial offering from Commission jurisdiction is the Commission's authority under Section 304(b)(1) to determine which carriers may own shares of stock in the Corporation, and therefore which carriers are eligible to purchase shares in the initial offering. So far as the non-carrier shareholders are concerned, the responsibility for the initial offering is that of the incorporator-directors and it is in the discharge of that responsibility that any initial limitation on stock ownership would be imposed under Section 5.02(c) of the Articles.

But the question goes beyond the fact that the initial offering is the responsibility of the incorporator-directors. The Act vests specific authority in the Commission to regulate the activities of the Corporation and other common carriers in certain defined areas specified in Sections 201(c), 304(b)(1) and 304(f) of the Act, and in no other areas. In these defined areas, the Commission is specifically authorized to "insure," "require," "prescribe," "approve," "grant," and "authorize." Determinations as to the maximum size of holdings by individual non-carrier shareholders fall outside the areas specified in the foregoing sections of the Act. It is noteworthy, in addition, that Section 304(f) commands the Commission to "promote the

widest possible distribution of stock among the authorized carriers," (emphasis added) but nowhere is it given responsibility or authority for the extent of distribution of non-carrier shares among the American public. Insofar as the Actuspeaks in Section 304(a) of assuring the widest distribution of the shares to the American public, it appears to fix this responsibility on the Corporation itself.

The authority of the Commission under Section 201(c)(8) of the Act to "authorize the Corporation to issue any shares of capital stock" [except the initial issue] should not be construed to give the Commission carte blanche, as a prior condition of approving any future offerings, to regulate all phases of stock ownership and all management decisions outside the specific areas of corporate conduct placed within the Commission's regulatory ambit. The scope and purpose of Section 201(c)(8) are shown by the following explanation in the Senate Commerce Committee report on H.R. 110/10:

"Paragraph (8) is a new provision which requires Commission authorization for the corporation to issue any shares of capital stock (except the initial issue of voting stock), to borrow moneys, or to assume any obligation in respect of the securities of any other person. Such authorization is to be given upon a finding that such action by the corporation is compatible with the public interest, convenience, and necessity, and is necessary or appropriate for or consistent with carrying out the purposes and objectives of the act by the corporation.

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"This amendment is considered important in carrying out the stated policy and purposes of the act of insuring that the benefits of this new technology are reflected in both the quality of communication services to be rendered by the corporation and the charges for such services. It is imperative that the corporation's capital structure be carefully regulated and controlled to avoid excessive capitalization or disproportionate amounts of equity or debt capital which could have adverse effects upon the corporation's revenue requirements and the charges for its services, and impair its ability to provide efficient and adequate service. The proposed authority is in general similar to the powers vested in the Federal Power Commission under the Federal Power Act as applied to electric utilities, and the Interstate Commerce Commission under the Interstate Commerce Act as applied to transportation carriers. However, in adopting this amendment your committee desires to make it clear that it is not exempting from the application of the Federal Securities Act the securities issues covered by this amendment." (S.Rep. 1584, 87th Cong. 2d Sess., June 11, 1962, pp. 18-19.)

In light of the foregoing, it seems clear that Section 201(c)(8) does not give the Commission the right to regulate the size of individual non-carrier holdings and similar relationships between the Corporation and the non-carrier owners of such shares.

The power to make regulations given to the Commission by Section 201(c)(11) of the Act does not add to the Commission's substantive authority. It does not vest power in the Commission to command or forbid the Corporation to do anything not covered by Sections 201(c), 304(b)(1) and 304(f), but merely authorizes the Commission to establish procedures for discharging its specific powers. With respect to the Corporation's duties under

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other provisions of the Act, the Commission could issue general interpretative regulations but its substantive and procedural rule-making authority is limited to the areas in which it is given responsibility.

This is clearly shown by the following extract from the Senate Commerce Committee report on H.R. 11040, explaining Section 201(c)(11) as follows:

"...the clause [previously in Section 201 (c)(1)] empowering the Commission to promulgate rules and regulations in order to implement the policies of the legislation regarding competition, has been made a separate paragraph (11) applicable to the implementation of each of the Commission's responsibilities specified in subsection (c).

[Emphasis supplied]

\* \* \* \*

"Paragraph (11) gives the Commission authority to make rules and regulations to carry out its responsibilities under this Act. The Commission must necessarily make both substantive and procedural rules and regulations in order to effectively implement the various provisions of the act. This authority, originally appearing only with respect to paragraph (1), has therefore been extended to other provisions as well." (S.Rep. 1584, 87th Cong. 2d Sess., June 11, 1962, pp. 16-17, 19.)

It is true that Section 403(c) of the Satellite Act makes it the duty of the Corporation to comply, insofar as applicable, with all rules and regulations promulgated thereunder. But this duty is of course conditioned on the regulations themselves being valid, and a Commission regulation which requires the Corporation to do or refrain from doing any act outside the areas defined in Sections 201(c), 304(b)(1) and 304(f) would not in our opinion be valid.

A clear indication of the intent of Congress as to the delineation of the boundaries of responsibilities as among the Corporation's Board of Directors, the Commission and the Attorney General appears in the following remarks of Senator Pastore, the manager of the bill on the floor of the Senate, in response to points made by Senator Kefauver (Cong. Rec., Daily Edition, August 17, 1962, p. 15820):

"As to the second point, the initial stock offering referred to in section 302 is obviously an offering of voting stock, and the incorporators must be allowed discretion as to the terms and size of the offering, subject to the provisions of the act. As to the third and fourth points, about the President's control of charter amendments and bylaws, it must be borne in mind that this is, after all, a private corporation which must have some of the normal rights with respect to its own affairs and internal management. Charter amendments and bylaws would of course have to be subordinate to the terms and policies of this bill and any departure therefrom would be enjoinable under Section 403 of the bill."

The injunctive power to which Senator Pastore referred is spelled out in Section 403(a) of the Act which provides that if the Corporation "shall engage in or adhere to any action, practices, or policies inconsistent with the policy and purposes declared in Section 102 of this Act," or "shall violate any provision of this Act," or "shall refuse, fail, or neglect to discharge [its] duties and responsibilities under this Act," the Attorney General may seek appropriate equitable relief in a United States district court.

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Thus, where it is asserted that the Corporation is acting contrary to the Act in some area not specifically confided to the jurisdiction of the Commission, responsibility for determining the contention is vested in the courts and such determination is to be made only upon a request by the Attorney General. In the present instance, as pointed out above, far from questioning the provision of the Articles which limits non-carrier stock ownership as the Board of Directors of the Corporation may provide, the Attorney General specifically advised the President of the United States that he found nothing contrary to the provisions of or inconsistent with the purposes of the Act. If for any reason the Corporation's decision to fix a 1% ownership limitation on non-carrier shareholdings (or any subsequent modification of such decision by the Corporation) should be thought to be contrary to or inconsistent with the Act or its policies, the Attorney General is the proper party to assert this position.

Sincerely yours,
WILMER, CUTLER & PICKERING

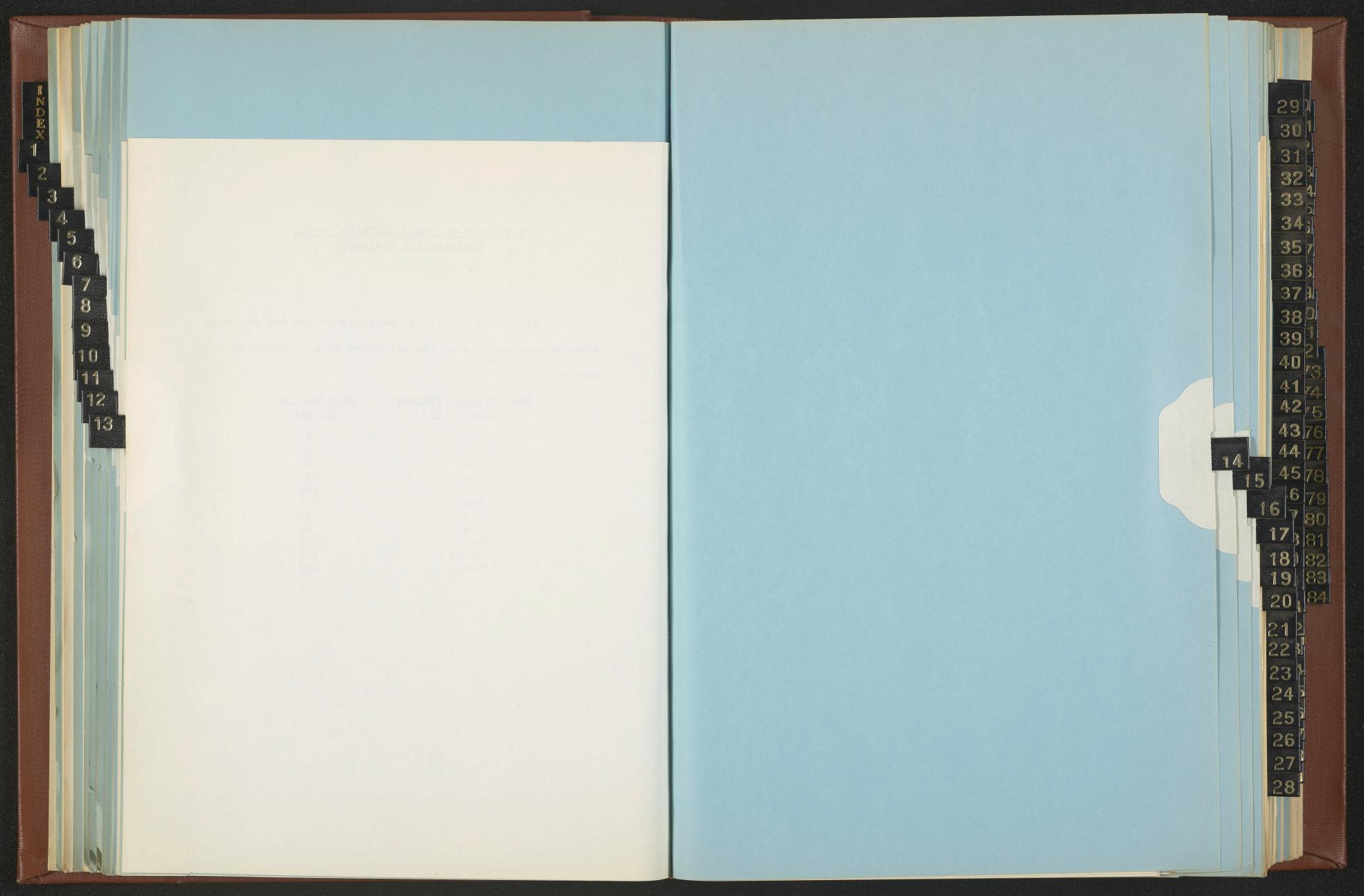
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# Reference to Other Exhibits to the Registration Statement

The following additional Exhibits to the Registration Statement, as on file at the effective date, are included herein:

Registration Stateme	ent Document No.
Exhibit No.	<u>Herein</u>
3-A	92
3-B	94
4-A	138
4-B	141
6-A	114
6-B	115
14-A	37
14-B	38
14-C	128
14-C-1	129
14-C-2	130

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**PROSPECTUS** 

10,000,000 Shares

# Communications Satellite Corporation

Common Stock (without par value)

The Corporation is not an agency or establishment of the United States Government.

As required by the Communications Satellite Act of 1962, 50% of the shares of Common Stock to which this Prospectus relates have been initially reserved for subscription by communications common carriers authorized by the Federal Communications Commission to own stock of the Corporation. See "Offering of Common Stock". On May 26, 1964, there remained, of the shares so reserved for all authorized carriers, shares which had not been subscribed for by them, and such shares, together with all of the 5,000,000 unreserved shares, are being offered by the Underwriters to the public.

There is at present no market for the Common Stock of the Corporation. Application has been made to list the Common Stock on the New York, Midwest and Pacific Coast Stock Exchanges.

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION NOR HAS THE COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS.

ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

al stations at each, countries (nothing-motion theat o	Offering Price	Underwriting Discount	Proceeds to Corporation*
Per Share: Public ( shares) Authorized Carriers ( shares)	\$20 \$20	\$ None	\$ \$20
Total:	\$200,000,000	\$	\$

<sup>\*</sup> Before deducting expenses payable by the Corporation estimated at \$630,000.

Merrill Lynch, Pierce, Fenner & Smith

Blyth & Co., Inc.

The First Boston Corporation Kidder, Peabody & Co.

> Kuhn, Loeb & Co. Incorporated

Lazard Frères & Co.

Lehman Brothers

Carl M. Loeb, Rhoades & Co. Paine, Webber, Jackson & Curtis White, Weld & Co.

Incorporated Dean Witter & Co.

June , 1964.

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IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVERALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE COMMON STOCK AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH TRANSACTIONS MAY BE EFFECTED ON THE NEW YORK, MIDWEST OR PACIFIC COAST STOCK EXCHANGES OR IN THE OVER-THE-COUNTER MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

#### THE CORPORATION

Communications Satellite Corporation (the Corporation) was incorporated under District of Columbia law on February 1, 1963, as authorized by the Communications Satellite Act of 1962 (the Act). The Act states that it is the policy of the United States to establish, in cooperation with other countries, as expeditiously as practicable, a commercial communications satellite system, as part of an improved global communications network, and that United States participation in the system shall be in the form of a private corporation, subject to appropriate Government regulation. The Corporation has been created in pursuance of such national policy, but the Corporation is not an agency or establishment of the United States Government. The United States Government has not guaranteed funds invested in the stock of the Corporation, the payment of dividends on shares of such stock, or the profitability of the venture in which the Corporation proposes to engage.

In accordance with the Act, the Corporation plans to establish and operate a global commercial communications satellite system in cooperation with telecommunications entities in other countries, certain of which are agencies of foreign governments. Such a system would use satellites placed in orbit around the earth to relay telecommunications between terminal stations in the United States and in other countries. Terminal stations in the United States would be connected with communications systems owned and operated by common carriers that provide telephone and other telecommunications service to the public. Terminal stations in other countries would be connected with communications systems that provide such service there.

It is expected that (i) telecommunications entities in other countries will provide and operate terminal stations in such countries (without which there cannot be a satellite system for international telecommunications), and (ii) such entities will share with the Corporation the costs of establishing the space segment of the system (comprising the satellites and the command and control facilities on earth), which would be jointly owned by the Corporation and such entities in proportion to their respective investments. It is contemplated that equitable allocations of the communications capacity of the space segment would be made to such joint owners and others. The Corporation would utilize its allocation to furnish satellite channels for hire to United States communications common carriers and other authorized users. It is expected that the charges made to United States carriers for use of such channels would be a principal source of the Corporation's revenue. Arrangements with telecommunications entities in other countries have not yet been made. The Corporation intends to proceed with its program for the establishment of the system while such arrangements are being negotiated. See "International Arrangements for System".

The Act embodies a comprehensive plan for the conduct of the business and affairs of the Corporation. It includes provisions governing the Corporation with respect to matters that, in the case of other communications common carriers in the United States, are not ordinarily subject to Government supervision or control. The Act defines the powers of the Corporation and the relationships of the Corporation to the President of the United States and various agencies of the United States Government which have responsibilities in carrying out the purposes of the Act. Under the provisions of the Act, the President of the United States has approved the Corporation's Articles of Incorporation, and he is directed by the Act, among other things, to exercise authority over the relationships of the Corporation with foreign governments and entities. The Act directs the Federal Communications Commission (the FCC) to exercise authority over certain aspects of the affairs of the Corporation, including the rates charged by it. See "Regulation".

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Provisions of the Act also govern the ownership of shares of Common Stock of the Corporation and the composition and manner of selection of its Board of Directors. Among other things, such provisions contemplate that up to half the total number of shares of Common Stock of the Corporation is to be owned by United States communications common carriers, and direct that, effective upon completion of the first meeting of shareholders, the Board of Directors shall consist of six directors elected by those shareholders which are communications common carriers, six directors elected by other shareholders and three directors appointed by the President of the United States with the advice and consent of the Senate. See "Management" and "Description of Common Stock—Voting Rights". In the Act, Congress expressly has reserved the right to repeal, alter or amend the Act at any time.

# THE VENTURE AND ITS RISKS

The Corporation proposes to engage solely in operations based on recent developments in space and communications technology. Careful consideration should be given to the matters referred to in the following summary, as well as to the information set forth elsewhere in this Prospectus.

(1) Experimental communications satellites have been placed in orbit and operated in programs conducted by the United States Government and private United States firms (other than the Corporation); but the establishment of a communications satellite system, capable of providing commercially useful service, has never before been attempted.

(2) Satellite systems of several different types are believed to be practicable for commercial purposes. To provide further information relevant to the selection of a type of system, the Corporation plans to conduct experiments and limited operations by means of a satellite to be launched by mid-1965. The program of the Corporation contemplates that the type of system to be established will not be determined before the latter part of 1965. It is anticipated that the system selected will be ready to provide service between certain areas beginning in 1966, but that the system will not be in full operation before the latter part of 1967. The dates referred to in this paragraph are approximations only, and every reference in this Prospectus to an anticipated date of a particular step in the program of the Corporation is subject to that qualification and to the qualification that unforeseen developments may either delay or prevent the carrying out of the program.

(3) It is anticipated that the Corporation will not have significant operating revenue until the system is in full operation. In view of the risks of the venture, the Corporation may not realize significant operating revenue for a period after full system operations commence, and the Corporation may operate at a loss for several years after commencement of full system operations. In view of such risks, the period during which operations are conducted at a loss may be even more extended. No dividends will be paid on the Common Stock for an indeterminate period.

(4) A communications satellite system of any type requires rockets or other launch vehicles that will place the satellites in the intended orbit, and the costs of launch vehicles will represent a major element in the costs of establishing a communications satellite system. It is contemplated that satellites for the system will be launched by vehicles developed in United States defense and space programs. The reliability of such vehicles is being further improved, but the risk of launch vehicle failure is an important risk inherent in an attempt to establish a satellite system of any type. Consequences of launch vehicle failure will include loss of the vehicle and of the satellite or satellites carried by the vehicle, and, if the failed vehicle causes injuries or damage, may also include liability therefor.

(5) A communications satellite system of any type requires satellites which will remain operable for a considerable period. On the basis of information derived from experimental com-

munications satellite programs, it is believed that satellite operating lifetimes of the duration necessary for a commercial system can be achieved, but the risk of early failure of satellites in orbit also is an important risk inherent in an attempt to establish a satellite system of any type. Failure of satellites in orbit may necessitate the launching of replacement satellites (involving additional launch vehicle costs) and may also cause interruption or suspension of service, with consequent loss of revenue.

(6) Certain techniques and devices, not yet proved in actual operations, are regarded as important to the commercial feasibility of certain types of satellite systems, or as important to highly efficient operations of any type of system. These include the launching of several communications satellites by a single launch vehicle (of importance to the commercial feasibility of a system consisting of a large number of satellites); techniques or devices to enable more than two terminal stations to communicate simultaneously via a single satellite without significant reduction in the satellite's communication capacity; and devices to control the attitude of satellites in orbit so that signals emitted by the satellite are directed toward the earth only.

(7) The demand for international telecommunications services (particularly telephone service) has increased continuously since the end of World War II, and, if the demand continues to increase, additional facilities of some kind will be required within the next few years to assure adequate telecommunications service between North America and Western Europe (commercially the most important route at present) and over certain other routes. The program of the Corporation to establish, in cooperation with other telecommunications entities, a commercial communications satellite system is based on the belief that the demand for international telecommunications services will continue to grow and on the expectation that the satellite system, in competition with facilities operated by others, will serve an important and increasing volume of international telecommunications traffic. It is expected that, in the early years of system operations, revenues from the use of satellite channels for telephone service will constitute by far the most important element in total revenues from system operations, and that revenues from television transmissions will not be significant in terms of such total revenues.

(8) The satellite system will compete with submarine telephone cable systems between North America and Western Europe and on certain other routes, and with high-frequency radio facilities generally. Such cable systems and radio facilities are owned by certain of the United States carriers and telecommunications entities in other countries which are prospective users of the satellite system. American Telephone and Telegraph Company (AT&T) is the principal United States owner of submarine telephone cable systems. The submarine cable systems with which the satellite system will compete may include cable systems of greatly increased efficiency now under development by AT&T and others. AT&T has stated an intention, subject to certain conditions, to lease satellite system channels of commercial quality, and other United States carriers have indicated an interest in so doing; but the Corporation has not obtained firm commitments therefor. The competitive position of the Corporation will depend on its ability to develop and operate a satellite system that will provide service which compares favorably, in cost and efficiency, with the service provided by other telecommunication facilities. See "Competition".

(9) The venture depends on the cooperation of telecommunications entities in other countries. Although many of such entities have indicated interest in the venture, the Corporation has not obtained the commitments of any such entities to provide the foreign terminal stations essential to the operations of a satellite system, or to join with the Corporation in the ownership (and payment of the costs) of the space segment of the system, or to use the system.

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(11) Other countries may have or may acquire the ability to establish and operate a satellite system which would compete with the system the Corporation proposes to establish. Governments of certain foreign countries from time to time have announced that communications satellite development activities are being pursued or considered in such countries; but the Corporation does not know of any plan for the establishment by any other country of a communications satellite system which would compete with the system contemplated by the program of the Corporation. Under provisions of law presently in effect, any such competing system could not provide telecommunications service between the United States and overseas points without authorization by the FCC.

(12) Under the provisions of the Act, the activities in which the Corporation has authority to engage are, in general, those related or incidental to the development, ownership and operation of a commercial communications satellite system as defined in the Act. In the event that future technological developments provide a basis for new types of communications systems which do not use earth satellites and satellite terminal stations on the earth's surface, the Corporation might be unable to take advantage of such developments without appropriate legislation. Such legislation might not necessarily be required by other enterprises.

(13) The Corporation has public responsibilities under the Act, as well as responsibilities to its shareholders. Among other things, in the interests of national policy, the Corporation may be required to provide certain communications services to particular foreign points in circumstances in which it would be contrary to the business judgment of the Corporation to do so.

# OFFERING OF COMMON STOCK

#### Offering to Authorized Carriers

As required by the Act and the Corporation's Articles of Incorporation, 50% of the 10,000,000 shares of Common Stock to which this Prospectus relates have been reserved for subscription by communications common carriers authorized by the FCC to own stock of the Corporation (authorized carriers). Such shares have been reserved until the close of business on May 26, 1964, for subscription by authorized carriers at the Offering Price set forth on the cover page of this Prospectus. Any such subscription may be revoked (in full but not in part) at any time prior to the acceptance thereof by the Corporation after the effectiveness of the Registration Statement covering the shares of Common Stock to which this Prospectus relates (the Registration Statement). The obligations of authorized carriers to purchase shares subscribed for by them are to be subject to certain conditions set forth in the prescribed subscription form including the conditions that (a) the Corporation shall have entered into a Purchase Contract with the Underwriters providing for (i) the purchase by the Underwriters of shares of Common Stock in aggregate number equal to the difference between 10,000,000 and the aggregate number of shares (not exceeding 5,000,000) subscribed for by authorized carriers at the time of the making of the Purchase Contract, and (ii) the public offering by the Underwriters of such shares at an initial offering price of \$20 per share, (b) the Registration Statement shall have become and shall remain effective, and (c) the

sum of the aggregate purchase price for shares covered by accepted subscriptions of authorized carriers and the net proceeds (after underwriting discount but before expenses) received by the Corporation for shares purchased by the Underwriters under the Purchase Contract shall amount to not less than \$190,000,000. A copy of this Prospectus, together with a letter of transmittal and subscription form, are being sent by the Corporation to each authorized carrier. Each authorized carrier in subscribing for shares will be required to agree that, unless compelled by the FCC in accordance with the provisions of the Act to transfer shares to another carrier, it will not, during a period of 60 days after the delivery to it of the shares of Common Stock purchased by it pursuant to the offering made by this Prospectus, sell or otherwise dispose of such shares otherwise than to an authorized carrier affiliated with it which is a party to a similar agreement with respect to the sale or other disposition of such shares during such 60-day period.

In the event that the total number of shares subscribed for by all authorized carriers exceeds the number of shares reserved for offering to such carriers, the reserved shares will be allocated among the subscribing carriers on the basis set forth under "Carrier Subscription Matters".

#### Offering to Public

The remaining 50% of the shares to which this Prospectus relates (5,000,000 shares), together with any shares reserved for subscription by authorized carriers which are not subscribed for by the close of business on May 26, 1964, will be purchased by the Underwriters from the Corporation for sale to the public.

In the Purchase Contract to be entered into by the Underwriters with the Corporation, the Underwriters will agree to use their best efforts to offer the Common Stock in a manner to encourage the widest distribution of the shares to the American public. To this end, the Underwriters named on the cover of this Prospectus propose to invite participation in the offering by approximately 350 additional underwriters located throughout the United States. It is also proposed that, in addition to offering a portion of the shares directly to the public, the Underwriters will offer shares to approximately 700 dealers for resale to the public.

Underwriters and dealers will not be required to accept or fill all orders received. In the proposed Purchase Contract between the Underwriters and the Corporation, the Underwriters will agree, except under certain circumstances, in making sales to persons other than dealers, to limit the number of shares allotted to any purchaser and to require each dealer to enter into an agreement to the same effect covering the shares sold by such dealer. Reference is made to the Purchase Contract, filed as an exhibit to the Registration Statement, for the terms of such agreement. See "Underwriting".

The decisions of authorized carriers to purchase shares may be based on business considerations not applicable to purchasers other than carriers.

## CAPITALIZATION

The following table sets forth the capitalization of the Corporation as of May 6, 1964 and as adjusted to give effect to the sale of 10,000,000 shares of Common Stock and the application of a portion of the proceeds of such sale to the payment of bank loans of the Corporation, as described under "Application of Proceeds":

Title of Class	Authorized	Outstanding	Adjusted
Bank loans due June 30, 1964	HEL OF ELECTRIC PONTER,	\$1,850,000	None
Common Stock, without par value*	10,000,100 shs.	14 shs.	10,000,014 shs.

<sup>\*</sup> The shares of Common Stock are issuable in two Series, designated Series I and Series II. As more fully set forth under "Description of Common Stock", and subject to the provisions of the Act and the Articles of Incorporation of the Corporation referred to therein, Series I shares are issuable to the public and Series II shares are issuable to communications common carriers authorized by the FCC to own stock of the Corporation.

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# APPLICATION OF PROCEEDS

The net proceeds from the sale of the 10,000,000 shares of Common Stock are estimated at approximately \$1,903,000 of such net proceeds will be applied to the payment of bank loans of the Corporation. The balance of such net proceeds (\$ ) will be applied to pay the costs and expenses to be incurred by the Corporation in carrying out its program over the next few years for the development and establishment of a commercial communications satellite system, and for related purposes. See "Program of the Corporation". It is contemplated that funds not at the time required for such purposes will be invested in obligations of the United States Government or in other interest-bearing obligations or deposits.

As indicated under "Program of the Corporation", the range of the costs which it is estimated will be incurred in carrying out the program of the Corporation is from \$190,000,000 to \$230,000,000. It is believed that the net proceeds from the sale of Common Stock, together with interest income and possible revenues from the operations of the experimental operational satellite proposed to be launched in 1965, will provide an amount sufficient to pay substantially all of the program costs which will be required to be paid by the Corporation. However, in view of the risks associated with the program and the possibility of changes in the program (including such changes as might result from modification of the program so as to satisfy certain requirements of the National Communications System), the actual costs may considerably exceed present estimates. See "National Communications System Program". The Corporation has not made any arrangements to provide such additional funds as may be required.

It is expected that telecommunications entities in other countries may become joint owners with the Corporation of the space segment (comprising the satellites and the command and control facilities) of the communications satellite system and may provide part of the capital necessary to pay the costs of establishing the space segment. The Corporation has not obtained the commitment of any such entity to bear any part of such costs. Other than as indicated above, the Corporation at present has no plans for the use of any of the net proceeds of this financing which, because of the sharing of costs by the telecommunications entities in other countries, or for any other reasons, may not be required by it to defray the costs of the program.

# SATELLITE COMMUNICATIONS

# Nature of Satellite Communications

A communications satellite system would consist of satellites placed in orbit around the earth for the purpose of relaying telecommunications between terminal stations at different places on the earth's surface. Telecommunications which would be so relayed would include telephone messages, television signals, and "record traffic" of various types (message and other telegraph traffic, teleprinter exchange traffic (telex), and facsimile, photogram and data transmissions). Terminal stations would be operationally connected with telephone systems and other telecommunications facilities. Telecommunications would be transmitted (i) from the place of origin, through telephone lines or other facilities, to a terminal station, (ii) from the terminal station to a satellite in orbit, (iii) from the satellite to another terminal station, and (iv) from the receiving terminal station, through telephone lines or other facilities, to the place of destination.

Communication by satellite between two terminal stations is possible only when a satellite is above the horizon (is "visible") at both terminal stations. If the satellite's orbit carries it below the horizon of one of the terminal stations, communication between the stations will not be possible until the satellite

again becomes visible to both stations or another satellite becomes visible to both stations. In such a case, to enable continuous communication between two terminal stations, a number of satellites would be necessary, so that before the last satellite visible to both terminal stations moves below the horizon of one of the stations, at least one other satellite will have become visible to both stations.

The number of satellites necessary to enable continuous communication between a pair of terminal stations depends primarily on the altitude and inclination of the orbits from the plane of the Equator and on whether the spacings between the satellites are controlled. Fewer satellites would be necessary at any altitude than would be necessary in an orbit of the same inclination at a lower altitude. The spacings between satellites at the same altitude will not be uniform unless such spacings are established, after the satellites are in orbit, by use of "position control" equipment included in the satellites. A system of satellites the spacings between which are controlled during orbit (a controlled system) need include fewer satellites than a system of satellites at the same altitude which are not subject to such control (a random system). Altitudes within the range of from 5,000 to 10,000 miles are generally proposed for a system (controlled or random) which is to consist of a number of satellites that in turn disappear below the horizon and in turn become visible again. Satellites in orbit at such altitudes (medium altitudes) could be used for communication between terminal stations over transoceanic distances.

The orbital period of a satellite and the length of the time that a satellite would be above the horizon of a particular terminal station increase as the altitude of the orbit increases. In particular, if the velocity of a satellite in orbit above the Equator at an altitude of 22,300 miles is effectively controlled, the orbital period of such a satellite would be 24 hours—an orbital period synchronized with the rotation of the earth. A satellite in such an orbit (synchronous orbit) would be visible to terminal stations within an area including approximately one third of the earth's surface and would be visible to terminal stations within that area during its entire orbital period of 24 hours. To an observer at such a terminal station, the satellite would appear to remain stationary in the sky. A satellite in such a synchronous orbit could be used at any time for communication between terminal stations within that area located up to 10,000 miles apart. The orbit of a satellite at an altitude of 22,300 miles, which deviates slightly from the plane of the Equator, is also referred to in this Prospectus as a synchronous orbit. The usefulness for communications of a satellite in such an orbit would be substantially the same as that of a satellite in a true "stationary" orbit, exactly above the Equator. A true "stationary" orbit (or an orbit of such slight deviation) has not yet been achieved.

The quality of telephone communication by means of a satellite in synchronous orbit would be reduced by reason of the length of the time (approximately three-tenths of a second) required for transmission of the signal to the satellite and back to earth (a delay which tends to interfere with the normal rhythms of conversation), and by the inter-acting effects of echo suppressors of existing types which must be used. There is not yet sufficient experience to indicate clearly whether or not telephone service by means of satellites in synchronous orbit will be of a quality that is generally acceptable to the public.

The principal components of any satellite which relays signals between terminal stations are (i) a receiver and related antenna, for the reception of signals from terminal stations, (ii) a transmitter and related antenna, to amplify and return signals to terminal stations, and (iii) a system to provide electrical energy for the satellite's receiver and transmitter. The principal components of a terminal station for any satellite system are, in addition to a source of electric power, a transmitter, a receiver, and at least one antenna. The orbital configuration of a satellite system greatly influences the nature of additional equipment which satellites and terminal stations must include. Placing and maintaining a satellite in synchronous orbit require that the satellite itself have position control equipment, to help achieve the synchronous orbit in the first instance and to overcome the effects of drift from such orbit. Satellites in a

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Command and control facilities (including computers and other equipment for tracking, guidance and control of satellites) also are necessary to satellite system operations.

#### Launching of Satellites

Rockets or other launch vehicles capable of placing objects of substantial weight in orbit are essential to a communications satellite system. Such vehicles have been developed in the United States in recent years in connection with United States Government space and defense programs. The reliability of such vehicles has been improved in the course of such programs, and agencies of the Government and others engaged therein are carrying out activities intended to increase launch vehicle reliability to a further degree; but the risk that one or more launch vehicles will fail to place satellites in a planned orbit may continue to be a significant factor throughout the period during which the Corporation proposes to create a commercial satellite system.

Costs of launch vehicles, and related vehicle launching expenses, are a major part of the aggregate cost of creating any satellite system. A medium altitude system may not be commercially feasible unless several satellites can be placed in the intended orbit by a single launch vehicle. In experiments conducted by agencies of the United States Government, as many as five objects have been placed in orbit by a single launch vehicle. Such objects were not communications satellites, and the orbits achieved were orbits at substantially lower altitudes than those contemplated for the satellites of a medium altitude system. The techniques necessary for a "multiple launch" of communications satellites would be the same as those successfully employed in such experiments; but no attempt has thus far been made in the United States to place more than one communications satellite in orbit by use of a single launch vehicle.

#### Satellite Lifetime

Satellites in orbit are subject to being damaged by radiation, by collision with natural objects and by other events in space. Damage resulting from any of such causes, or a failure of satellite components for other reasons, may interrupt or terminate the operation of the satellite. Certain of the experimental satellites launched in the United States experienced damage or failure of components within relatively short times after being placed in orbit. Three of the experimental satellites have operated for periods of nine months or longer. The longest such period was approximately 15 months, and the satellite which operated for that period is no longer in operation. Certain of the other experimental satellites launched in the United States are still in operation. See "Experimental Communications Satellites".

Failure of a satellite in orbit may impair or prevent communication service between the terminal stations to which the satellite is visible. In the case of a medium altitude system, the failure of a satellite is likely to result in interruptions of service during periods of predictable occurrence and length, corresponding to the periods during which the inoperative satellite is the only satellite visible to the terminal stations. Such periods of interruption will be longer if the system is a controlled system than if the system is a random system. If communication between two terminal stations is provided by a single synchronous satellite and there is not a "standby" satellite in orbit, failure of the satellite will prevent communication at any time until the satellite is replaced. Costs of replacing a satellite that has failed in orbit

include the costs of the replacement satellite, the costs of a launch vehicle and related vehicle launching expenses. For a commercial system, the impairment or suspension of service resulting from satellite failure may also result in loss of substantial revenue until service can be restored by the successful launching of the replacement satellite.

#### **Experimental Communications Satellites**

Relay II

January 21, 1964

Experimental communications satellites have been developed and placed in orbit in programs conducted by agencies of the United States Government and by private American companies other than the Corporation. The following table sets forth information with respect to the principal experimental communications satellites (other than passive "reflector" satellites) launched in the United States:

	Experimenta	al Communicati	ons Satellites (United	d States)
Name(a)	Launch Date	Altitude of Initial Orbit (statute miles)	Operating Lifetime of Telecommunications System	Telecommunications Transmissions
Score	December 18, 1958	115 to 914	13 days (design life)	Voice and telegraph, including delayed signal repetition and rebroadcast of recorded mes- sage.
Courier I-A	August 18, 1960	Failed to orbit (launch vehicle exploded)	re nave see <u>n.</u> in respe y communications co	d best of the annual constructed by
Courier I-B	October 4, 1960	586 to <b>767</b>	17 days	Voice, telegraph and telephoto, including voice transmission to Puerto Rico.
Telstar I	July 10, 1962	593 to 3,503	189 days(b)	Television, voice, telegraph, data and telephoto, including trans- Atlantic transmissions.
Relay I	December 13, 1962	819 to <b>4,612</b>	461 days (c)	Television, voice, telegraph, data and telephoto, including transmissions between the U. S. and Western Europe and South America, and between the U. S. and Japan.
Syncom I	February 13, 1963	21,268 to 22,974	Communication lost at injection into orbit.	mications satellife system. I
Telstar II	May 7, 1963	604 to 6,713	332 days(d)(e)	Similar to Telstar I.
Syncom II	July 26, 1963	22,240 to 22,247 (orbit very nearly circular and synchro-	279 days(d)	Voice, telegraph, data and tele- photo, including transmissions between the U. S., Western Europe and Africa.

Of the satellites referred to in the table, (i) Telstar I and Telstar II were designed and constructed by American Telephone and Telegraph Company, (ii) Relay I and Relay II were designed and constructed by Radio Corporation of America (RCA) under contract with the National Aeronautics and Space Administration (NASA), (iii) Syncom I and Syncom II were designed and constructed by Hughes Aircraft Company under contract with NASA, (iv) communications equipment for Score was constructed by RCA for the Department of Defense, and (v) Courier IA and IB were constructed by Philco Corporation for the Department of Defense.

Similar to Relay I.

1,325 to 4,600 101 days(d)

Exclusive of a 40-day interruption (attributed to damage caused by radiation) in the operating lifetime stated. Termination of lifetime is attributed to damage so caused.

(c) Computed to April 8, 1964. The Corporation has been advised by NASA that, on that day, the telecommunications system of the satellite ceased operating and that it will not be known until early in May whether the cessation is temporary or permanent. The operating lifetime shown is exclusive of a 20-day period, immediately following launch, during which malfunction in satellite components prevented telecommunications transmission.

1) Computed to April 30, 1964, at which time the telecommunications system of the satellite was still operable.
2) Exclusive of a 27-day interval during which the telecommunications system was inoperable for unknown reasons.

\$ 55,000,000 - \$ 65,000,000

\$ 75,000,000 - \$ 90,000,000

\$ 9,000,000 - \$ 10,000,000

\$ 17,000,000 - \$ 20,000,000

\$ 20,000,000 - \$ 25,000,000

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The improvements in experimental satellites which are essential for the satellites of a commercial system are primarily those related to the achievement of reliability of components through careful selection and intensive testing. In addition, certain anticipated developments in components or techniques generally are regarded as important to communications satellite operations of highest efficiency, viz., (i) development of techniques which will enable a satellite to communicate simultaneously with more than two terminal stations without material reduction in the satellite's overall communication capacity, and (ii) development of devices which can be used to control the attitude of satellites for extended periods of time, so that signals emitted by the satellite are directed toward the earth only.

The terminal station facilities principally used in connection with the operation of the experimental satellites referred to in the table have been, in respect of facilities in the United States, experimental terminal stations constructed by communications common carriers or facilities of the United States Government, and, in respect of facilities outside the United States, experimental terminal stations constructed by foreign telecommunications entities, including such facilities in the United Kingdom, France, Italy, Brazil and Japan. Telecommunications entities in other foreign countries (including Canada and the Federal Republic of Germany) are engaged in the construction of terminal station facilities in such countries.

### PROGRAM OF THE CORPORATION

#### Activities to Date

The Corporation has been engaged in various activities leading to the creation of a commercial communications satellite system. It has established its offices in leased premises in Washington, D. C. Technical and economic studies are being carried out by the staff of the Corporation and by firms under contract with the Corporation, including studies of factors affecting the design of a satellite system, studies with respect to potential telecommunications traffic which such a system might serve, and studies relating to the minimum specifications and characteristics of an initial communications satellite system. Expenses incurred in connection with these activities have been financed by bank borrowings.

## Summary of Program and Estimated Costs

The Board of Directors of the Corporation has approved a program for the development and establishment of a commercial communications satellite system. The principal elements of the Corporation's program, and the estimated costs of each element in the program, are summarized below. The cost estimates shown are approximations only, and, in view of various factors referred to below, the actual costs of the program as a whole, or of particular elements in the program, may considerably exceed such estimates. The estimates do not reflect such additional costs as would be involved if the program were modified to satisfy certain requirements of the National Communications System. See "National Communications System Program". The cost estimates in the summary do not include any amount covering the expenses to be incurred in maintaining an established system.

#### EXPERIMENTAL OPERATIONAL SATELLITES

(	conduct of certain communications tests and limited operations by	
533	means of an experimental operational satellite proposed to be placed	
à		
1000	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	

#### SYSTEM DEVELOPMENT

Preparation of satellite engineering designs and development of proto	-
type satellites of various types, preparatory to a decision, proposed	d
to be made in the latter part of 1965, as to whether the commercia satellite system will be a medium altitude system or a synchronou	1
system	

Manufacture and placing in orbit of satellites constituting a commer
cial communications satellite system, to provide limited service
estimated to begin in 1966 and to be in full operation in the latte
part of 1967

Construction											
control cen	ter	for	the sate	llite sys	stem	1	 	 	 		

# Proposed Terminal Stations

onstruction by	the Corp	oration	of satellite	e terminai	stations	required
in the United	States*					

# RESEARCH AND DEVELOPMENT AND ADMINISTRATION

Additional	research	and	development	and	administrative	activities	

Total	Aletvia. and	gr.H. div. brancara	. os. otri .ba	\$190,000,000 - \$230,000,000
		manufacture assemble	oreinsh, and to	

<sup>\*</sup>Contingent on matters referred to under "Proposed Terminal Stations".

The Corporation has entered into an agreement for the design and manufacture of the experimental operational satellites, and has received proposals for the preparation of the satellite engineering designs, referred to in the foregoing summary. Except with respect to the equipment and services to which such agreement and proposals relate, the cost estimates in the foregoing summary are not based upon bids to provide equipment or services. Such estimates are based on information furnished to the Corporation by the United States Government and United States firms which have engaged in satellite experiments and in other phases of space programs. The Corporation expects to invite at the appropriate time competitive bids or proposals for the equipment and services required by its program. The actual costs of the program summarized above may vary considerably from estimated costs, depending upon the characteristics of the system, unforeseen factors affecting adversely launching costs or costs of components, and technological developments or other factors. In view of the risks of the venture, the taking of any particular step in the program may be delayed for extended periods beyond the approximate date for such step referred to in the summary above.

The program of the Corporation summarized above may be changed in material respects by reason of unforeseen developments. Whether or not any such development occurs, the program is also subject to change by the Board of Directors of the Corporation that will succeed the present Board. See "Management". Changes in the program may also be made by reason of modification of the program to satisfy certain requirements of the National Communications System or by reason of the nature or terms of the international arrangements to be negotiated for the system. See "National Communications"

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# **Experimental Operational Satellites**

The Corporation plans to conduct communications tests and to provide certain commercial communications services by means of a satellite to be placed in synchronous orbit over the Atlantic Ocean in mid-1965. The principal objectives of the program for such a satellite are to obtain information relevant to the selection and design of a commercial system (including information about public attitudes toward the time delays and echo suppression effects involved in telephone conversation via satellite in synchronous orbit) and also to provide experience in the conduct of operations. The particular satellite to be used in the program will be designed to provide up to 240 two-way telephone grade circuits between appropriately equipped terminal stations in North America and Western Europe. Such circuits could be used for telephone conversations, or for record traffic, or for the transmission of television signals. The capacity provided by one two-way telephone grade circuit is sufficient for the simultaneous transmission of 22 or more telegraph messages, depending on the terminal equipment used. The construction, launching and operation of the satellite are subject to the approval of the FCC. The Corporation has obtained such approval for the construction of the satellite, but has not yet made application for the other necessary approvals.

The Corporation has entered into an agreement with Hughes Aircraft Company, Culver City, California (Hughes Aircraft), for the design, manufacture, assembly and testing of two such satellites, for the manufacture of components for a third such satellite and for the performance of certain related services. The agreement provides for delivery of the first satellite in April, 1965, and for delivery of the second satellite later that year. Under the provisions of the agreement, the aggregate amount payable by the Corporation to Hughes Aircraft is related to the length of the period during which, after successful implacement in orbit, either of the two satellites is operable in accordance with certain operating standards specified in the agreement. Under such provisions, the minimum aggregate amount payable by the Corporation, whether or not any satellite meeting specifications is operable for any period, is \$6,335,000, and the maximum aggregate amount payable by the Corporation, which would be payable if each of the two satellites is operable for a period of 18 months or longer, would be \$10,835,000. The agreement also provides for additional payments by the Corporation to Hughes Aircraft in the event of the delivery of the first satellite in advance of the scheduled delivery date.

The Corporation expects to enter into an agreement with the National Aeronautics and Space Administration (NASA), an agency of the United States Government, for the furnishing to the Corporation by NASA of launch vehicles and launching services for two such satellites. The Act provides that NASA shall furnish launching services to the Corporation on a reimbursable basis. The Corporation has held preliminary discussions with NASA with respect to the furnishing by NASA of such launching services, but the terms of an agreement between the Corporation and NASA have not been determined.

It is expected that the vehicle to be used in the launching of each such satellite would be a Thor Delta rocket vehicle with three augmenting rockets attached. A total of 24 launchings of the Thor Delta rocket vehicle (without such augmenting rockets) has been attempted to date in connection with national

space programs. Of such launching attempts, 22 were successful, including the launchings of the experimental satellites Syncom I and Syncom II. The launchings of Syncom I and Syncom II are the only launchings of the Thor Delta rocket vehicle to date for the purpose of placing an object into synchronous orbit. The Thor Delta rocket vehicle with such augmenting rockets has not been launched to date in national space programs.

The program of the Corporation contemplates that, in the event the first launch attempt fails or the first satellite is inoperable, an attempt will be made to launch the second satellite into synchronous orbit over the Atlantic Ocean. If the first launch is successful, it will then be determined whether to launch the second satellite into orbit over the Atlantic Ocean (to provide additional or stand-by capacity) or to launch it into orbit over the Pacific Ocean, or to hold it in reserve.

The Corporation is discussing with AT&T the terms of arrangements for the modification of AT&T's experimental terminal station facilities at Andover, Maine, and for the use of such facilities in the conduct of tests and operation of such satellites. Such arrangements and use will be subject to the approval of the FCC. It is expected that experimental terminal station facilities now existing or to be constructed in other countries will be used in the conduct of such tests and operations, but arrangements therefor have not yet been made. The Corporation proposes to offer to United States communication common carriers and other authorized users, for hire, channels of communication by means of the satellite in synchronous orbit above the Atlantic Ocean, between such terminal station in the United States and such terminal stations in Western Europe. AT&T has advised the FCC that it intends to seek FCC authorization to lease 100 circuits in the experimental operational satellite as soon as such circuits are commercially available; but the Corporation has not obtained the commitment of AT&T (or of any other carrier or entity) to lease any such circuits.

#### System Development

In December, 1963, the Corporation invited 15 United States firms to submit proposals for the preparation of engineering designs of satellites for a commercial system. In response to such invitation, proposals were submitted by (i) AT&T and Radio Corporation of America (RCA), jointly, (ii) Hughes Aircraft, (iii) Philco Corporation, and (iv) Space Technology Laboratories, Inc. (STL) in association with International Telephone and Telegraph Corporation (ITT). The AT&T-RCA proposal and the Philco Corporation proposal are each for the design of satellites for a medium altitude random system. The STL-ITT proposal is for the design of satellites for a medium altitude controlled system. The Hughes Aircraft proposal is for the design of satellites for a synchronous satellite system. The Corporation expects to negotiate and enter into agreements with certain of such firms for the preparation of engineering designs on the basis of the proposals submitted by them. Each such agreement would provide for the completion of the designs within a period of six months from the date thereof. The Corporation may enter into other agreements for the conduct of studies relating to satellite design.

The program of the Corporation for the development of a global commercial satellite system contemplates that (a) in the latter part of 1964, after evaluation of the engineering designs referred to above, the Corporation will enter into an agreement or agreements for the development of prototype satellites for systems of one or more types; and (b) in the latter part of 1965, it will be determined whether the commercial system will be a medium altitude random system, a medium altitude controlled system or a synchronous system. It is expected that the choice of a system type will be made after evaluation of the results of the operation of the synchronous satellite to be launched in 1965, and in the light of

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The satellites of the system selected would be designed to provide at least 270 two-way telephone grade circuits initially, which could be used for the simultaneous transmission between two terminal stations of up to that number of telephone conversations or for the transmission of other forms of telecommunications. If development of efficient attitude stabilizing devices is completed in time and such devices are incorporated in the satellites, the design capacity of the satellites may be increased to up to 1200 such circuits.

There is set forth below, with respect to each of the alternative projected systems, information as to the characteristics of the system and the contemplated development schedule for such a system, should it be selected as the commercial system.

Medium Altitude System. A commercial medium altitude system would consist of satellites in orbit at an altitude of approximately 6,000 miles. Such a system might be either (i) a random system of approximately 18 satellites at that altitude, or (ii) a controlled system of a lesser number of satellites at that altitude, with desired spacings between the satellites being achieved through the use of position control equipment included in each satellite. It is expected that such a medium altitude system, when in full operation, would provide channels of communication on a substantially continuous basis between appropriate pairs of suitably equipped terminal stations located in various parts of the world.

Plans for such a system (if selected) contemplate that the first satellites would be launched in mid1966, and that launchings necessary to complete the system would be carried out within a period of
approximately a year from the date of such launchings. It also is contemplated that more than one satellite
would be placed in orbit by each launch vehicle. The program of the Corporation for the replacement of
satellites of a medium altitude system assumes that the satellites will have operating lifetimes of not less
than three years. To date, none of the experimental communications satellites launched in the United
States has had an operating lifetime in excess of 15 months, and the "multiple launching" technique
has not yet been attempted with communications satellites. See "Satellite Communications". A series
of failures in "multiple launching" attempts, or a general failure of satellites to achieve planned operating lifetimes, would have a serious adverse effect on the commercial feasibility of such a system.

Synchronous System. A commercial synchronous system would consist of at least three satellites in synchronous orbit at an altitude of approximately 22,300 miles. Such satellites would be stationed at appropriate points so as to be able to provide channels of communication on a continuous basis between appropriate pairs of suitably equipped terminal stations located in various parts of the world.

Plans for such a system (if selected) contemplate that, in mid-1966, two satellites will be placed in synchronous orbit above the Atlantic Ocean and one satellite will be placed in such an orbit above the Pacific Ocean. A second Pacific Ocean satellite or an Indian Ocean satellite, or both, might be launched in the following year. It is expected that satellites would be launched singly. The program of the Corporation for the replacement of satellites of a synchronous system assumes that the satellites will have operating lifetimes of not less than one year. The satellites of such a synchronous system would be in addition to those referred to under "Experimental Operational Satellites".

Combined Systems. It is envisioned that the initial global system to be established will not combine the use of satellites in synchronous orbit and random orbit. However, since the program of the Corporation involves placing an experimental operational synchronous satellite in orbit in 1965, it is possible

that for a time use could be made of two different types of satellites. It is also possible that a commercial communications satellite system could ultimately consist of a combination of satellites of different types.

Command and Control Facilities. The Corporation plans to arrange for the design, construction and equipping of a command and control center for the system, to be located in the continental United States. The center would include computers, and would include or be linked to equipment for the tracking, guidance, control and command of the satellites constituting the system. It is expected that the construction and equipping of such center will be completed by mid-1966, to provide for the type of system theretofore selected.

Launching Services. The Corporation expects to enter into agreements with NASA providing for the purchase from NASA of the launching and associated services necessary to establish and maintain the system. The Corporation has held preliminary discussions with NASA with respect to the launching schedule contemplated by the program of the Corporation, the types of launch vehicles proposed to be used, and related matters, but the terms and provisions of such agreements have not been negotiated.

The Corporation expects that launch vehicles of types developed (or under development) in connection with the national space programs will be used in the launchings of satellites of the commercial communications satellite system. Several launch vehicle types are believed to be suitable for such use. The Corporation has not yet determined the type of vehicle which would be used to launch the satellites of a medium altitude system or the satellites of a synchronous system. It is expected that such determination will be made at the time it is decided whether the system is to be a synchronous system, or a medium altitude random system or a medium altitude controlled system.

#### Proposed Terminal Stations

The program of the Corporation contemplates that (i) if the commercial communications satellite system is a medium altitude system, there would initially be three terminal stations in the continental United States (northeast, northwest and southeast quarters) and a terminal station in the State of Hawaii, and (ii) if the commercial system is a synchronous system, there would initially be two terminal stations in the continental United States (eastern half and western half) and a terminal station in the State of Hawaii. Under the provisions of the Act, a license to own and operate any of such terminal stations may be granted by the FCC only to the Corporation or to one or more communications common carriers, or to the Corporation and one or more such carriers jointly. The number and location of terminal stations in the United States actually licensed by the FCC may differ from the number and location of the stations contemplated by the program of the Corporation. As of the date of this Prospectus, neither the Corporation nor any carrier has filed with the FCC an application for such a license. AT&T and ITT each have constructed and own experimental terminal station facilities in the United States. Pursuant to authorizations by the FCC under the Communications Act of 1934, such stations have engaged in various telecommunications experiments.

AT&T and certain other carriers engaged in international telecommunications have stated, expressly or in substance, an intention to apply to the FCC at the appropriate time for authorization to own and operate, or to participate in the ownership and operation of, one or more United States terminal stations. The Corporation intends to apply to the FCC at the appropriate time for authorization to own and operate each terminal station in the United States (including the State of Hawaii) or to carry out arrangements

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The construction and operation of suitably equipped terminal stations in foreign countries are essential to the operations of the commercial communications satellite system. It is presently expected that terminal stations in foreign countries will be constructed, owned and operated by telecommunications entities or authorities other than the Corporation.

In the event that the proposed program referred to under "National Communications System Program" is undertaken, terminal station facilities required for the use of the Government in connection with such program would be owned by the United States Government. See "National Communications System Program".

# National Communications System Program

By Executive Order of the President there was established in August, 1963 the National Communications System, which is responsible for the administration of all communications facilities serving the Government of the United States, including the Department of State, the Department of Defense, the General Services Administration, the Federal Aviation Agency, and all other governmental departments and agencies. Under this Executive Order, the Secretary of Defense is the Executive Agent for the President.

For some time there have been discussions, which are continuing, between the office of the Secretary of Defense and the Corporation with a view to ascertaining whether a feasible program can be developed under which the National Communications System would be provided with satellite communications capability adapted to its needs, consistently with the development and establishment of a commercial communications satellite system.

As stated above under "System Development", the program of the Corporation contemplates active research and development on both synchronous and medium altitude communications satellite systems, with the ultimate decision to be made in 1965 as to whether the commercial system will be a medium altitude random system, a medium altitude controlled system, or a synchronous system. The office of the Secretary of Defense has advised the Corporation that, in order to minimize the risks of "jamming", and for other reasons, a medium altitude random system is needed. Accordingly, the discussions which have been had with the office of the Secretary of Defense have sought, on the one hand, to explore the possibilities of satisfying the requirements of the National Communications System if such a medium altitude system is selected, and on the other hand to spell out arrangements whereby the products of work done on a medium altitude random system could be utilized for the benefit of the Government or terms satisfactory to the Corporation and the Government in the event that another type of system is selected for the commercial satellite system.

If agreement should be reached with the Government under which, in the event of selection of a medium altitude random system as the commercial system, the National Communications System would be provided with capability to satisfy certain of its requirements, the range of estimated costs for the manufacture and placing in orbit of satellites constituting the system would be substantially greater than the \$75,000,000-\$90,000,000 range of such estimated costs in the case of a purely commercial system,

to be owned by such carriers. The Corporation has not negotiated any such arrangement with AT&T explore in their discussions whether, as the result of such a program, the portion of the total cost properly or any other carrier. It is possible that the ownership and operation of terminal stations in the United allocable to the establishment and maintenance of the commercial system would be reduced, with a result-States will be the subject of contested proceedings before the FCC among the Corporation and one or ing advantage to the Corporation and such others as may participate in the ownership of the commercial system, and with a similar reduction in cost to the Government. It is also contemplated that if agreement were reached with the Government under which the National Communications System were provided with a portion of the capability of a medium altitude random system, charges would be made to the Government which would be such as to provide a reasonable return on the portion of the total cost of the system properly allocable to such capability. Such charges may be subject to regulation by the FCC.

> Many technical and administrative problems would be involved in carrying out a program such as that outlined above, and many aspects of it are subject to the approval of the FCC, as well as other participants. Furthermore, the nature of such international arrangements as are made with the telecommunications entities in other countries, discussed below under "International Arrangements for System", may affect the feasibility of any such program or the manner in which it would be carried out. Although the Corporation believes that, if the proposed program could be carried out, it would offer advantages to both the Corporation and the Government, there is substantial question whether the problems inherent in the program can be resolved and as to the extent to which modifications in the program would affect the costs thereof or the manner in which it would be carried out.

# Research and Development

The Corporation proposes to engage in communications satellite research and development activities as a part of the program for the establishment and operation of a commercial system. Certain of such research and development activities will be related to matters affecting the design of satellites which would be launched to establish the commercial satellite system. Other such activities will be directed toward matters affecting the design of satellites which would be launched after the system is in being, either as replacements for inoperative satellites of the system or for the purpose of increasing the capability of the

#### INTERNATIONAL ARRANGEMENTS FOR SYSTEM

In accordance with the policies of the United States Government, which favor the development of a single global system, telecommunications entities in other countries have been and will be given the opportunity of participating with the Corporation in the establishment of the space segment (comprising the satellites and the command and control facilities) of the commercial communications satellite system. Officers of the Corporation and representatives of the United States Government have met with representatives of other governments and other telecommunications entities for the purpose of discussing international arrangements for such participation. In these discussions, the Corporation and the United States Government have proposed that the telecommunications entities in other countries might share with the Corporation the costs of establishing the space segment, which would be jointly owned by the Corporation and such entities in proportion to their respective investments. According to this proposal, each participant's share of the total investment in the space segment would be based upon its share of world telecommunications traffic which is suitable for transmission by a communications satellite system and upon the participant's anticipated use of the system. On this basis, the Corporation's share would exceed the shares of all other participants combined.

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The proposal contemplates that the Corporation would act as manager on behalf of the joint owners in the designing, establishing and operating of the space segment and would be compensated for such services. It also contemplates that each of the investing participants would be allocated an equitable portion of the space segment capacity and that the Corporation would utilize its allocation to furnish satellite channels for hire to the United States communications common carriers and other authorized users. It is expected that the charges made to United States carriers for use of such channels would be a principal source of the Corporation's revenue.

The Corporation and the United States Government have proposed that appropriate interim arrangements covering the establishment and operation of the proposed system in its early stages be negotiated as soon as possible among prospective participants who are prepared to make immediate commitments for substantial investments of capital in the space segment, with provision for new investors to become participants at a later date. Certain of these arrangements would be among governments and other arrangements would be among the participating communications entities. It is expected that negotiations will be conducted in the near future with representatives of the governments and telecommunications entities in a number of countries, including Western European nations, Canada, Japan and Australia. The outcome of such negotiations and the terms of the interim arrangements which might result from them cannot be predicted. In order to insure the development of a communications satellite system as promptly as possible, the Corporation intends to proceed with its program while such negotiations are pending, and it is prepared if necessary to finance the entire cost of establishing the system (exclusive of the costs of foreign terminal stations). Early in 1963 the United States Government suggested to the Government of the U.S.S.R. that it might be useful to have discussions relative to the establishment of a single global commercial communications satellite system. Recently that Government indicated that it would be prepared to hold such discussions, and the United States Government responded with the suggestion that a meeting for that purpose, in which the Corporation would participate, be held in June

The international allocation of frequency bands for space radio-communication services is a prerequisite to the conduct of the operations of a commercial communications satellite system. Important
steps in this area were taken at the Extraordinary Administrative Radio Conference on Space Communications, held in Geneva, Switzerland, in October and early November, 1963. The Conference, which
was held under the auspices of the International Telecommunication Union (ITU), a specialized agency
of the United Nations, allocated for communications satellite services (a) two 50 megacycle bands of
frequency space, on an exclusive basis, and (b) 2500 to 2700 megacycles of frequency space, on a shared
basis with existing radio services. A number of ITU members (including certain countries in Western
Europe) have stated that, in their countries, certain existing radio services would continue to use either
or both of the two 50 megacycle bands allocated by the Conference to communications satellite services
on an exclusive basis. The Corporation believes that the frequency allocations so made by the Conference,
which are subject to ratification by ITU members, make satisfactory provision for the requirements of
the communications satellite system contemplated by the program of the Corporation.

#### INTERNATIONAL TELECOMMUNICATIONS

Facilities for International Telecommunications

Telecommunications service between the United States and overseas points is provided by United States communications common carriers (U. S. carriers), in most instances in collaboration with telecommunications entities in foreign countries. The U. S. carriers are subject to regulation by the FCC under the Communications Act of 1934, and other provisions of law, with respect to the construction and operation of facilities for such service and the rates charged therefor. The collaborating telecommunications entities in foreign countries are either government-owned or privately owned, but subject to regulation or control by the governments of such countries. International service between points outside the United States is provided by agencies of foreign governments, by other foreign telecommunications entities and by U. S. carriers.

International telecommunications service is provided primarily by means of submarine telephone cables, high-frequency radio facilities and submarine telegraph cables, and, in respect of service between contiguous countries, also by terrestrial (overland) facilities.

Submarine Telephone Cables. Submarine telephone cables carry all forms of record traffic, as well as telephone traffic. Existing telephone cables, and those planned to be in service by December 31, 1965, are not designed to transmit high-quality television signals. The first oceanic telephone cable (Florida-Cuba) began service in 1950 and the first trans-Atlantic telephone cable was placed in operation in 1956. Other important submarine telephone cable systems have been placed in operation at various times since 1956. Further advances in cable and related technology have greatly increased the initial capacity of telephone cables most recently placed in service. In addition, significant increases have been made in the capacity of earlier telephone cables, primarily by the installation of additional cable terminal equipment ("TASI equipment"), which automatically utilizes capacity resulting from intervals in one conversation for the transmission of another conversation. AT&T and others are carrying out programs to place additional telephone cable systems in operation at various future dates.

The following table sets forth information with respect to the principal submarine telephone cable systems in operation at December 31, 1960, and December 31, 1963, or scheduled to be in operation at December 31, 1965, other than those within Europe or between Europe and North Africa:

lephone grade circuits) provided by cable systems circuit, from Convincional inglows, used exclusively by the internacional inglines of North Atlanta inglitude of the provided of the conductors and the conductors of the conducto	Number of Two-way Telephone Grade Circuits in Service at December 31		
Cable System(a)	1960(b)	1963(b)	1965 (Est.) (b)
North Atlantic			
U.S. or Canada—U.K. or France			
Primarily for U.S. traffic	170	298	426(c)
Other systems	iclud <u>ed</u> in th	104(d)	104(d)
Western Hemisphere(e)			
U.S.—Alaska	36	48	48
U.S.—Puerto Rico	48	85	85
U.S.—Bermuda	de (li-) mis	80	80
U.S.—Jamaica	mode <del>ve</del> ofde	128	128
Jamaica—Canal Zone	ture arrestors	128	128
Canal Zone—Colombia			80
U.S.—Virgin Islands	Hallare in	SUSTEMBLE CON	128
Virgin Islands—Venezuela	stem:	Zone <del>ca</del> ble sy	80

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(a) As used in the table, U.S. refers to points within the 48 contiguous States of the United States and U.K. refers to the United Kingdom.

(b) Numbers of circuits in service at December 31, 1960 and December 31, 1963 include circuits provided by TASI equipment installed at said dates. Estimates of circuits to be in service at December 31, 1965, are based on assumptions that (i) systems planned for completion by that date will be so completed and will then provide planned capacity, and same capacity as provided at December 31, 1963, will be in operation at December 31, 1965, and will then provide the December 31, 1965, and the capacity of certain of the cable systems in service at December 31, 1963 (including certain of the North Atlantic systems) could be increased substantially for traffic of certain types (including message telephone obtained for installation of TASI equipment. The FCC, which heretofore has not required that its authorization be carriers for future installation of such equipment.

(c) Includes the initial planned capacity (128 two-way telephone grade circuits) of a cable between New Jersey and France, the construction of which by mid-1965 the FCC recently has determined to be required by the public interest, convenience and necessity. Such determination was made in proceedings upon applications of AT&T for authority to construct such a cable over that route, and of Mackay Radio and Telegraph Company (an affiliate of ITT) for authority to construct a trans-Atlantic cable over a different route. AT&T's application estimated that its share of the costs of the cable proposed by it (in which AT&T would have an ownership interest of approximately 65%) would be \$34,347,000. The FCC's determination provides that the new cable should be authorized in the name of all the United States overseas telecommunication entities (both record and telephone) which desire to participate in such ownership.

(d) Includes the capacity (24 two-way telephone grade circuits) provided by cable systems extending from Canada to Iceland and from Iceland to the United Kingdom, used exclusively by the international airlines of North Atlantic countries to provide communication services necessary for the conduct of their operations.

(e) In addition to the Western Hemisphere cable systems shown above, the Corporation is advised that ITT and AT&T propose, subject to the obtaining of various requisite governmental approvals, jointly to construct and operate a cable, with a design capacity of 160 two-way telephone grade circuits, from the Canal Zone down the west coast of South America to Chile, which it is contemplated would be completed by the end of 1965. See "Competition".

Of the cable systems included in the foregoing table, AT&T owns, or has ownership interests in (or, in respect of systems to be constructed before December 31, 1965, is expected to own or have ownership interests in), (i) all the North Atlantic cable systems reflected in the numbers of circuits shown opposite "Primarily for U. S. Traffic", (ii) each of the cable systems referred to under the heading "Western Hemisphere", (iii) the U. S.-Hawaii cable systems, and (iv) the Hawaii-Guam-Japan and the Guam-Philippines cable systems. Hawaiian Telephone Company also has ownership interests in the U. S.-Hawaii cable systems and the Hawaii-Guam-Japan cable system. Affiliates of ITT have ownership interests in the U. S.-Puerto Rico, the U. S.-Virgin Islands, the U. S.-Jamaica and the Jamaica-Canal Zone cable systems.

AT&T and others are engaged in the development of improved submarine telephone cables. See "Competition".

High-Frequency Radio Facilities. High-frequency radio (HFR) facilities serve telephone and record traffic on routes served by telephone cables and, in addition, provide the only telephone and record service to the many areas of the world which do not have cable connections. Communication by HFR circuits is subject to fading, distortion and blackout because of disturbances in the ionosphere.

HFR facilities began extensive service for international record traffic shortly before World War I, and for international telephone traffic in 1927. All international telephone traffic (except that carried by overland facilities) was carried on HFR circuits until the introduction of submarine telephone cables in 1956. Submarine telephone cables now carry a far greater part of international telephone traffic than is carried by HFR facilities between places having both telephone cable and HFR service. On routes which have submarine telephone cable service, HFR facilities are operated primarily on a standby basis.

In addition, communications circuits for all forms of telecommunication are provided by tropospheric scatter radio systems and ionospheric scatter radio systems. Tropospheric scatter systems are used for communication over relatively short distances (i.e., 300 miles or less). Ionospheric scatter systems are also used for communication over longer routes. The capacity of scatter systems in comparison with the capacity of submarine telephone cables is not significant.

Submarine Telegraph Cables. Service provided by submarine telegraph cables is limited to message telegraph and other telegraph transmissions. The capacity of such cables in comparison with the capacity of submarine telephone cables is not significant. Beginning in 1960, U. S. carriers which operate submarine telegraph cables have leased circuits in submarine telephone cables for transmission of telegraph and other forms of record traffic, and since that time an increasing proportion of the record traffic between the United States and overseas points has been transmitted through such leased circuits. With the approval of the FCC, certain U. S. carriers recently have abandoned submarine telegraph cables (including trans-Atlantic telegraph cables) theretofore operated by them.

#### Traffic and Revenues

Telephone traffic and record traffic between the United States and overseas places constitute an important part of all telephone and record traffic between different continents or areas of the world. It is estimated that, in 1963, overseas telephone messages originating or terminating in the continental United States represented approximately 70% of the total number of intercontinental telephone messages, and that approximately one-half the revenues from overseas telephone messages originating or terminating in the United States were received by U. S. carriers.

Telephone and record traffic between the United States and overseas places has increased continuously since the end of World War II. In respect of record traffic, the most rapid growth has been in forms of service other than message telegraph service, principally teleprinter exchanges service (telex) and leased circuit services. The following table sets forth information, for each of the years indicated, with respect to telephone traffic between the continental United States and places outside the continental United States (except Canada and Mexico). The table shows, in respect of such routes,

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gir-frequency radio (HFR) facilities serve telephone and recolles and, in addition, provide the only telephone and recolles and, in addition, provide the only telephone and recolless and in addition, provide the only telephone and recolless and in the contract of the co	No. of Chargeable Calls (Thousands)	Gross Revenues from Chargeable Calls (Thousands of \$)*
1947	517	\$ 5,833
1950	745	8,198
1955 1956	1,194	13,001
1077	1,394	15,802
1050	2,178	22,679
1050	2,427	27,841
1060	2,736	33,110
1961	3,301	42,322
1962	3,945	50,906
1962	4,461	61,387
1903 (est.)	4,825	69,410

\*Exclusive of any revenues (approximately \$12,700,000 in 1962) derived by U. S. telephone carriers from leases of table (except estimates for 1963) is from statistical publications of the FCC for the years indicated.

The revenues of the U. S. carriers shown in the table reflect (1) charges for the domestic segment of the telephone calls (including terminal handling), as well as charges for the overseas segment of the calls, and (2) rates established for a "retail" communications service, rendered directly to the public. In contrast, any revenue which the Corporation would receive from leases of satellite system channels would relate only to the overseas segment of the service, and would reflect rates to be established for a "wholesale" service rendered to the carriers and not directly to the public. Accordingly, any revenues of the Corporation under leases of satellite system channels to U. S. carriers would be less than the revenues which the U. S. carriers would receive from their customers for providing overseas telephone service through such satellite system channels. The revenues shown in the table include revenues of U. S. carriers from calls over certain routes (e.g., between the U. S. and places in the Caribbean) which would not necessarily be served by satellite system channels in the early years of a commercial satellite system.

Of the gross revenues of the U. S. telephone carriers from overseas chargeable calls in 1962, as shown in the foregoing table, \$22,668,000 (37%) relate to chargeable calls classified as "Trans-Atlantic and Bermuda", \$21,927,000 (36%) relate to chargeable calls classified as "Central America, South America and Caribbean" and \$16,792,000 (27%) relate to chargeable calls classified as "Trans-Pacific".

The aggregate amount paid by U. S. telegraph carriers for the rental of circuits in submarine telephone cables from U. S. telephone carriers and others is estimated at approximately \$4,662,000 for 1963. The gross revenues of the U. S. telegraph carriers from record traffic service between the United States and overseas places are a much larger amount, reflecting not only such leased circuit costs but charges in respect of the HFR or telegraph cable facilities operated by them for traffic not transmitted through such leased circuits, charges attributable to transmission services in the United States from points of origin to gateways for overseas transmission, and charges in respect of non-transmission services.

The demand for telecommunications service between Western Europe and North America, and on certain other overseas routes, exceeded the capacity of available facilities during peak demand hours in 1963.

Future International Telecommunications Traffic

The rate of growth in the demand for international telecommunications service is influenced by many factors, including population growth, the extent of international trade and travel, the extent of improvements in domestic telecommunications systems and rates for international telecommunications service. Estimates with respect to the demand for international telecommunications service at various times through 1980 have been published in recent years by U. S. carriers, by representatives of such carriers and by international bodies and other persons. Such estimates, which are not necessarily based on the same information with respect to relevant matters or on the same assumptions with respect to factors which may affect the demand for international telecommunications service, differ substantially from each other in certain respects. All such estimates of which the officers of the Corporation have knowledge, however, reflect the view that, during the periods to which such estimates, respectively, relate, there will be a continuous growth in the demand for telephone and record traffic service between the continental United States or North America and other areas of the world, and that the demand for telephone and record traffic service between the continental United States and Western Europe will exceed the capacity of telephone cables now in existence or now scheduled for construction through 1965 within a period of not more than a year thereafter. Estimates of future demand for international telecommunications service necessarily are based on assumptions and predictions with respect to factors which may affect the growth of such demand, and the accuracy of such estimates may depend upon the substantial correctness of the assumptions and predictions on which the estimates are based.

Although the need for a commercial communications satellite system derives primarily from the anticipated growth in demand for international telecommunications services and the relationship of such demand to the capacity of present and proposed submarine telephone cables, it is possible that, once such a system has been established, it may be used to provide service between intracontinental points separated by long distances. The Corporation is unable to predict the extent of such intracontinental use of the proposed system.

Submarine cable systems (and/or other telecommunications facilities), in addition to those now planned, may be constructed and placed in operation at or before the time the commercial communications satellite system is established, to meet the anticipated increase in demand for international telecommunications service. See "Competition".

#### COMPETITION

The U. S. carriers and telecommunications entities in other countries to which satellite system channels will be offered own and operate the submarine telephone cable systems and HFR facilities with which the satellite system will compete. In respect of telephone and record traffic between the continental United States and overseas points, the facilities of the satellite system will compete principally with those of AT&T and the U. S. telegraph carriers.

The amount of the revenues from the operations of the satellite system will depend in the first instance on the ability of the system to provide communication channels of commercial quality. The amount of such revenues will also be affected by the extent of the growth of international telecommunications traffic and the extent of the construction of submarine telephone cable systems or other telecommunications facilities. The competitive position of the Corporation will depend on its ability to develop and operate a satellite system which compares favorably, in cost and efficiency, with service provided by cable systems or other telecommunications facilities.

AT&T and others are engaged in the development of improved submarine telephone cables. The cables under development by AT&T include cables in which transistors would be used for the first time in

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Under the Communications Act of 1934, and other provisions of law, the construction and operation of a submarine telephone cable between the United States and an overseas point may not be undertaken unless the FCC has determined that the present or future public convenience and necessity require or will require the construction and operation of the cable.

In December, 1963, AT&T advised the Corporation, among other things, to the effect that (a) AT&T sees a place and a need for both satellite and cable communications, in order to provide for anticipated increases in the volume of trans-oceanic communications and to provide diversity in means of communication, (b) if satellite system circuits of satisfactory quality and costs reasonably related to the costs of providing communication circuits by alternative means are available in late 1966 or early 1967 on North Atlantic routes, AT&T would prefer, in order to provide diversity of facilities in meeting additional needs, to use satellite circuits instead of placing additional cables in service on such routes, subject to the giving to AT&T during 1964 of assurances that suitable satellite circuits would be available in 1966 or early 1967, the obtaining of the agreement of the interested European telecommunications entities (which AT&T would take all reasonable steps to help obtain), and the obtaining of necessary authorizations from the FCC, and (c) it appears to AT&T that such preference for satellite circuits would continue until North Atlantic routes were served by approximately equal numbers of cable system voice circuits and satellite system voice circuits.

The Corporation is informed that ITT (subsidiaries of which operate telecommunications systems in various South and Central American countries) and AT&T have recently transmitted letters to the Department of State stating that they desire to construct by the end of 1965, and participate in the ownership and operation of, a submarine telephone cable which would extend from the Canal Zone down the west coast of South America to Chile. This cable, which would have a design capacity of 160 two-way telephone grade circuits, would constitute a continuation of a submarine telephone cable recently put in operation between the United States and the Canal Zone via Jamaica. The Corporation is informed that this cable may subsequently be connected with facilities, to be constructed, which would provide a continuation of similar telecommunications service across the Andes to Argentina and, by submarine cable along the east coast of South America, to Brazil. In their letters to the Department of State, ITT and AT&T expressed the view that both cable and satellite facilities are needed. In its letter ITT also stated that it had initiated discussions with the governments of various South American countries looking toward the granting of franchises for both cable facilities and satellite terminal stations. The Corporation i unable to state the extent to which the cable program described above, if the requisite approvals of governmental authorities in the United States and other countries are obtained and the cable system is constructed, might adversely affect the establishment of or the revenues from satellite communications services between the United States and South American countries or between South American countries.

In respect of telecommunications traffic between places outside the United States, the facilities of the satellite system will compete principally with facilities of foreign telecommunications entities, which may include facilities not now scheduled to be constructed.

#### REGULATION

The Corporation is subject to regulation by the FCC under the provisions of the Act and, as a munications common carrier, under certain provisions of the Communications Act of 1934. The matters as to which the FCC has regulatory authority include, among other things, (a) the prorement by the Corporation of equipment and services required for the establishment and operation of the satellite system and terminal stations, (b) the use by communications common carriers of the acilities of the satellite system and terminal stations, including the charges to be made therefor, (c) e making of additions with respect to the facilities of the satellite system or terminal stations, including uthority to insure that no substantial additions are made by the Corporation or carriers with respect to facilities of the satellite system or terminal stations unless such additions are required by the public interest, convenience, and necessity, and authority to require the establishment of service to particular foreign points upon advice of the Secretary of State of the United States that such service should be established in the national interest, (d) the technical characteristics of the satellite system and terminal stations, including the technical compatibility and operational interconnection of the system and terminal stations with each other and with existing communications facilities, (e) accounting systems, and (f) the issuance of securities (other than the issuance of the shares of Common Stock to which this Prospectus relates) and the borrowing of funds. Under the provisions of such Act or Acts, in respect of rates charged by the Corporation for service to communications common carriers and other authorized users, the FCC may limit the Corporation to a reasonable rate of return, and the FCC is also directed by the Act to engage in such rate-making procedures as will insure that any economies made possible by a ommunications satellite system are appropriately reflected in rates for public communications services. The Act also provides that the FCC shall authorize the construction and operation of each satellite terminal station by the Corporation or one or more communications common carriers authorized to provide services by means of communications satellites, or by the Corporation and one or more such carriers jointly, without preference to either the Corporation or such carriers, as will best serve the public interest, convenience and necessity.

Under the provisions of the Act, the Corporation is required to meet certain responsibilities to resentatives or agencies of the United States Government other than the FCC. The Act provides hat (a) the President of the United States shall exercise such supervision over the relationships of the Corporation with foreign governments, foreign entities and international bodies as may be appropriate to assure that such relationships are consistent with the national interest and foreign policy of the United States, and that the President shall exercise various other powers relating to the establishment and operation of a commercial communications satellite system; (b) the Corporation shall notify the Department of State whenever it enters into business negotiations with a foreign or international entity relating to the Corporation's facilities, operations or services, shall receive the advice of that Department with respect to relevant foreign policy considerations and, throughout such negotiations, shall keep the Department informed with respect to such considerations; (c) NASA shall, among other things, consult with the Corporation with respect to the technical characteristics of the satellite system; cooperate, to the extent deemed appropriate by it, in the Corporation's research and development program; and provide, on a reimbursable basis, satellite launching and associated services deemed necessary by NASA in connection with the research and development program of the Corporation or required for the establishment, operation and maintenance of the communications satellite system; (d) the Corporation shall transmit to the President of the United States and to the United States Congress, detailed reports of its operations, activities and accomplishments under the

Communication via the satellite system with a telecommunications entity in any other country may also be subject to regulation or control by the government of such country.

# Directors MANAGEMENT

of the Corporation for its exclusive benefit.

In accordance with the provisions of the Act, the present Board of Directors of the Corporation consists of persons appointed by the President of the United States, with the advice and consent of the United States Senate, as incorporators of the Corporation. The name and principal occupation of each such person are as follows:

Name	Principal Occupation
Joseph V. Charyk	President of the Corporation, Washington, D. C.
John T. Connor	President, Merck & Co., Rahway, New Jersey
George J. Feldman	Vice President and Counsel, Mastan Co., New York, N. Y
Beardsley Graham	President, Spindletop Research, Inc., Lexington, Kentuck
Sam Harris	Attorney, New York, N. Y.
Edgar F. Kaiser	President, Kaiser Industries Corporation, Oakland, California*
David M. Kennedy	Chairman, Continental Illinois National Bank and Trust Company of Chicago, Chicago, Illinois*
George Killion	President, American President Lines, San Francisco, California
Byrne Litschgi	Attorney, Tampa, Florida
Leonard H. Marks	Attorney, Washington, D. C.
Bruce G. Sundlun	Attorney, Washington, D. C.
Sidney J. Weinberg	Partner, Goldman, Sachs & Co., New York, N. Y.
Leo D. Welch	Chairman and Chief Executive Officer of the Corporation, Washington, D. C.*
Leonard Woodcock	Vice President, UAW-CIO, Detroit, Michigan

<sup>\*</sup> Continental Illinois National Bank and Trust Company of Chicago, of which Mr. Kennedy is a director and Chairman of the Board, Bank of America National Trust and Savings Association, of which Mr. Kaiser is a director, and First National City Bank, of which Mr. Welch is a director, are among the banks which are parties to the Corporation's bank credit agreement. See "Notes to Financial Statements".

The present Board of Directors will serve until the first annual meeting of shareholders following completion of the offering made by this Prospectus. It is expected that such shareholders meeting will be held on or about September 1, 1964. As provided in the Act and the Articles of Incorporation of the Corporation, the Board of Directors thereafter will consist of 15 individuals, of whom (a) three will be appointed by the President of the United States, by and with the advice and consent of the Senate, for terms of three years (except that the first three directors so appointed will continue in office

for terms of one, two and three years, respectively), (b) six will be elected annually by those holders of Common Stock which are communications common carriers (holders of Series II shares), and (c) six will be elected annually by holders of Common Stock who are not communications common carriers or persons having specified relationships to any such carrier (holders of Series I shares). See "Description of Common Stock—Voting Rights", below. The Articles of Incorporation provide that each director, regardless of the method of his appointment or election, shall have the same fiduciary duty to the Corporation and its shareholders.

Under the provisions of the By-laws of the Corporation presently in effect, no vote may be counted for the election of any person as a director unless (a) such person was proposed for nomination to be a candidate by written notice signed by a shareholder of the appropriate Series and mailed to the Secretary of the Corporation not less than 10 nor more than 50 days before the date of the meeting, (b) such person has filed with the Secretary of the Corporation a statement of his interests in any communications common carrier, and (c) a statement of the interests of such person in any communications common carrier shall have been included in each written solicitation of proxies in favor of his election, made by such person or by his proposer.

It is the intention of the present Board of Directors, as holders of Series I shares, to nominate six candidates for election as directors by holders of Series I shares (public shareholders) at the first annual meeting of shareholders, and to solicit proxies for the election of such candidates. Such candidates may include members of the present Board of Directors. The identity of such candidates has not been determined.

#### Officers and Staff Division Heads

The names of the executive officers and heads of the principal staff divisions of the Corporation are as follows:

Name Name	Office or Position
Leo D. Welch	Chairman and Chief Executive Officer*
Joseph V. Charyk	President*
Allen E. Throop	Vice President and General Counsel*
Lewis C. Meyer**	Treasurer*
Frederic M. Mead	Comptroller*
David J. Melamed	Secretary*
John A. Johnson	Director of International Arrangements
Sidney Metzger	Manager, Engineering Division
Siegfried H. Reiger	Manager for Systems Analysis
Matthew Gordon	Director of Information

<sup>\*</sup>Executive officer elected by the Board of Directors.

\*\* Mr. Meyer is also Finance Coordinator of the Corporation.

Mr. Welch has served as Chairman and Chief Executive Officer of the Corporation since March 31, 1963. From 1944 to that date, he served in various capacities with Standard Oil Company (New Jersey), including service as a vice president (September 6, 1956 to April 2, 1958), executive vice president and member of the executive committee (April 3, 1958 to April 30, 1960) and chairman of the board and vice chairman of the executive committee (May 1, 1960 to March 31, 1963).

Dr. Charyk has served as President of the Corporation since February 28, 1963. From January 1959 to that date, he served in various civilian capacities with the United States Department of the Air Force,

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including service as Chief Scientist of the Air Force (January, 1959 to June, 1959), Assistant Secretary officers, of the Corporation whose aggregate direct remuneration in such year is estimated will exceed of the Air Force for Research and Development (June, 1959 to January, 1960), and Under Secretary of the Air Force (January, 1960 to February, 1963). Before such service with the Department of th Air Force, Dr. Charyk was General Manager of the Space Technology Division of Aeronutronic Sys tems, Inc. (a subsidiary of the Ford Motor Company) and was a director of the Aerophysics and Chemistry Laboratory of Lockheed Aircraft Corporation.

Mr. Throop has served as Vice President and General Counsel of the Corporation since May 31 1963. From 1945 to that date he was a member of the law firm of Messrs. Shearman & Sterling, New York, N. Y.

Mr. Meyer has served as Finance Coordinator of the Corporation since June 2, 1963, and as Treasurer and Finance Coordinator since April 10, 1964. From July, 1958 until his employment by the Corporation, he served in various civilian capacities with the United States Department of the Air Force, including service as Chief, Missile and Space Systems Division, Office of the Comptroller of the Air Force (July, 1958 to August 1962), and as Deputy for Financial Analysis, Office of the Assistant Secretary of the Air Force (Financial Management) (August, 1962 to June 2, 1963).

Mr. Mead was elected Comptroller of the Corporation, effective May 1, 1964. From March 1, 1958 to April 30, 1964, he served in various capacities with Mallinckrodt Chemical Works, St. Louis, Missouri, including service as Controller (April 4, 1961 to April 30, 1964).

Mr. Melamed served as Assistant Counsel to the Chairman of the Incorporators of the Corporation from November 6, 1962 to January 31, 1963, as Assistant Secretary of the Corporation from February 1, 1963 to September 15, 1963, and has served as Secretary of the Corporation since that time. From August 11, 1956 to November 5, 1962, he was an associate with the law firm of Messrs. Cravath, Swaine & Moore, New York, N. Y.

Mr. Johnson has served as Director of International Arrangements since December 9, 1963. From October, 1958 to that date, he served as General Counsel of the National Aeronautics and Space Administration.

Mr. Metzger has served as Manager, Engineering Division, since June 6, 1963. From 1954 to that date, he served in various capacities with Radio Corporation of America (RCA), including service as Manager, Communications Engineering, of the Astro-Electronics Division of RCA and Manager of RCA's New York Communications System Laboratory.

Mr. Reiger has served as Manager for Systems Analysis since June 3, 1963. From January, 1959 to that date, he was a Senior Staff Member of The Rand Corporation, Santa Monica, California, from which he is on leave of absence.

Mr. Gordon has served as Director of Information, including public relations and government relations, since May 20, 1963. From March, 1946, to September, 1961 Mr. Gordon was in charge of press services at the United Nations. From the latter date until May 20, 1963, he was in private business, primarily as a consultant to technological companies.

## Remuneration

The following table sets forth the aggregate direct remuneration for services in all capacities estimated to be payable by the Corporation in 1964 (a) to each director, and each of the three highest-paid

\$30,000, and (b) to all directors and officers of the Corporation as a group:

Capacities In Which Remuneration Was Received	Aggregate Direct Remuneration*
Chairman and Chief Executive Officer	\$125,000
President	80,000
Vice President and General Counsel	50,000
	367,000
	Received Chairman and Chief Executive Officer President Vice President and General Counsel

\* It is estimated that the following additional amounts will be payable by the Corporation in 1964 as life insurance remiums in respect of the officers named under policies other than the Corporation's contributory group insurance olicy: Mr. Welch, \$4,481; Dr. Charyk, \$1,183; Mr. Throop, \$714.

The Corporation does not have an employment contract with any of its officers or employees, or any lan or arrangement for the payment of retirement benefits to any of its directors, officers or employees.

At April 30, 1964 the Corporation employed 72 persons, of whom 37 were administrative or professional employees. None of the employees of the Corporation is represented by a collective baraining agent. It is expected that increases in the number of employees of the Corporation will be required in the carrying out of the program to establish a commercial communications satellite system, and also in the operation of the system, including command and control facilities and such of the terminal stations in the United States as may be operated by the Corporation.

## DESCRIPTION OF COMMON STOCK

For a full description of the Common Stock of the Corporation, reference is made to the Communications Satellite Act of 1962, and to the Articles of Incorporation, as amended, of the Corporation, a copy of which is filed as an Exhibit to the Registration Statement. The following statements summarize the elevant provisions of said Articles and the Act and are qualified by such reference.

The transfer agents for the Common Stock are Continental Illinois National Bank and Trust Company of Chicago, Chicago, Ill.; Manufacturers Hanover Trust Company, New York, N. Y.; and Vells Fargo Bank, San Francisco, Calif.

The registrars for the Common Stock are The First National Bank of Chicago, Chicago, Ill.; The Chase Manhattan Bank, New York, N. Y.; and Bank of America National Trust and Savings Association, San Francisco, Calif.

By amendment of the Articles of Incorporation effective May 6, 1964, the authorized capital of the Corporation was increased from 100 shares of Common Stock, without par value, to 10,000,100 such shares.

## Series I and Series II Shares

Shares of Common Stock are issuable in two series designated respectively Series I and Series II. Except as stated below under "Restrictions on Ownership and Transfer of Shares" and "Voting Rights", the rights of a holder of a Series I share, as such, and the rights of a holder of a Series II share, as such, are the same.

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Shares issued or transferred to persons other than authorized carriers are Series I shares. Shares issued or transferred to authorized carriers are Series II shares. Authorized carriers are those communications common carriers, as defined below, which have been authorized by the FCC to own shares of stock of the Corporation. Shares of either Series may not be issued or transferred to a communications common carrier which is not an authorized carrier or to persons having certain relationships with a communications common carrier. See "Restrictions on Ownership and Transfer of Shares".

Under the provisions of the Act and the Articles of Incorporation, in any offering by the Corporation of Common Stock, 50% of the shares to be offered must be reserved for offering and offered for purchase by authorized carriers. Shares reserved and offered to authorized carriers but not purchased by them may be offered to other persons.

# Dividend Rights

Holders of Common Stock are entitled to receive such dividends, in cash, in property or in shares of stock of the Corporation, as may be declared by the Board of Directors. Holders of Common Stock, as such, have equal dividend rights, irrespective of the Series of shares of Common Stock held by them.

#### Liquidation

Upon any liquidation, dissolution or winding up of the Corporation, holders of shares of Common Stock, irrespective of the Series of such shares held by them, are entitled to receive, pro rata, the assets of the Corporation available for distribution.

# Restrictions on Ownership and Transfer of Shares

Subject to the limitations referred to below, holders of Series I shares or of Series II shares may at any time sell or otherwise dispose of such shares to any person to whom shares of either Series may be issued and, upon surrender of the share certificate for transfer, the transferee will receive a certificate, representing the same number of shares as the surrendered certificate, for shares of the Series appropriate to him.

The ownership and transfer of shares of Common Stock are subject to the following provisions:

- (i) Except for an authorized carrier, shares of Common Stock may not be owned or held, directly or indirectly, by any communications common carrier, or by a subsidiary or affiliated company of any communications common carrier, or by a trustee, director or officer of any of the foregoing. For these purposes, the term "communications common carrier" has the meaning of the term "common carrier" as used in the Communications Act of 1934, and also includes any person or entity which owns or controls, directly or indirectly, or is under direct or indirect common control with, any such carrier, but does not include the Corporation.
- (ii) The aggregate number of shares of Common Stock owned or held, directly or indirectly, by authorized carriers may not at any time exceed 50% of the total number of shares of Common Stock issued and outstanding.
- (iii) Not more than an aggregate of 20% of the number of shares of Common Stock owned or held by persons other than authorized carriers may be owned or held by persons of the classes described in paragraphs (1) through (5) of Section 310(a) of the Communications Act of 1934.

The classes as described consist of aliens, foreign governments, representatives of aliens or foreign governments, and corporations organized under the laws of foreign governments (hereinafter collectively called Alien Persons); corporations of which any officer or director is an alien or of which more than 20% of the capital stock is owned of record or voted by Alien Persons; and, upon a determination of the FCC, a corporation which is directly or indirectly controlled by any other corporation of which any officer or more than one-fourth of the directors are aliens or of which more than 25% of the capital stock is owned of record or voted by Alien Persons.

- (iv) As provided in the Act, the number of shares of Common Stock owned or held by any person (other than an authorized carrier) or syndicate or affiliated group of such persons may not at any time exceed 10% of the total number of shares of Common Stock at the time outstanding, or, as provided in the Articles of Incorporation, such lesser percentage thereof as the Board of Directors may from time to time determine for the purpose of encouraging the widest distribution of shares of Common Stock to the American public. Notice of any such determination by the Board of Directors must be mailed to each record holder of Common Stock not less than ten days prior to the effective date of such determination. The ownership of shares acquired before the effective date of any such determination is not affected thereby. Pursuant to such provisions of the Articles of Incorporation, the Board of Directors has fixed 1% as the maximum percentage of the outstanding shares of Common Stock which may be owned or held by any shareholder (other than an authorized carrier) or syndicate or affiliated group of such shareholders. The FCC has advised the Corporation that it has determined that any action by the Corporation fixing such a maximum percentage of less than 10% is subject to review by the FCC to ascertain its reasonableness in the light of the purposes and objectives of the Act. The Corporation has been advised by its special counsel, Messrs. Wilmer, Cutler & Pickering, Washington, D. C., that, in the opinion of such firm, the FCC does not have authority to review and set aside such action of the Board of Directors, and that any such action of the Board may be determined to be invalid under the Act only by the courts.
- (v) No authorized carrier or affiliated group of such carriers may sell or transfer to persons other than authorized carriers shares of Common Stock totalling, in any consecutive 12-month period, more than 2% of the greatest number of Series II shares issued and outstanding at any time during such period, except pursuant to a general public offering or in conformity with regulations adopted by the Board of Directors to encourage the widest distribution of shares of Common Stock to the American public.
- (vi) The FCC is authorized, upon application by any authorized carrier and after notice and hearing, to require any other authorized carrier which owns shares of Common Stock to transfer to the applicant, for a fair and reasonable consideration, such number of shares as the FCC determines will advance the public interest and the purposes of the Act.

#### Voting Rights

Holders of Common Stock have exclusive voting rights. Except as otherwise stated in the following three paragraphs, each share of Common Stock, irrespective of Series, is entitled to one vote on each matter submitted to a vote at a meeting of shareholders.

Holders of Series I shares of Common Stock are entitled to elect six directors. In voting for directors, each holder of Series I shares has the right to vote the number of shares held by him for six candidates, or to cumulate such shares and give one candidate as many votes as the number of his shares

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multiplied by six shall equal, or to distribute such votes on the same principle among any number of candidates not exceeding six. No Series I share may be voted for the election of directors if such vote is subject to the direction or control of a person ineligible to own or hold Series I shares. See "Restrictions on Ownership and Transfer of Shares", above.

Holders of Series II shares of Common Stock are entitled to elect six directors. In voting for directors, each holder of Series II shares has the right to cumulate such shares and give one candidate as many votes as the number of shares held by him multiplied by six shall equal, or to distribute such votes on the same principle among any number of candidates not exceeding three. No holder of Series II shares or trustee for such holder may vote, directly or indirectly, for more than three candidates.

No share of Common Stock, irrespective of Series, may be voted on any matter at a meeting of shareholders if, at the time of such meeting, the share is owned or held in violation of the Act or any regulation promulgated thereunder or in violation of the Articles of Incorporation or any regulation or determination made by the Board of Directors thereunder; and the Corporation may, in accordance with regulations adopted by the Board of Directors, require that the holder of shares furnish appropriate information to this effect in connection with the voting of his shares.

The By-laws of the Corporation provide that, at any meeting of shareholders for the election of directors (a) a majority of the shares of Series I Common Stock entitled to vote thereat constitutes a quorum for the election of directors by holders of shares of such Series, and (b) a majority of shares of Series II Common Stock entitled to vote thereat constitutes a quorum for the election of directors by the holders of shares of such Series, provided that, with respect to each Series, if such quorum shall not have been attained within 30 days from the date of the meeting as originally called, one-third of the shares of such Series entitled to vote thereat constitutes a quorum for the purpose of election of directors by holders of shares of such Series. Except where a greater proportion is required by law, one-third of the total number of shares (Series I and Series II) entitled to vote thereat constitutes a quorum for the transaction of any business other than the election of directors.

It is the intention of the present Board of Directors, in the event that, upon completion of the distribution of the shares offered by this Prospectus, the aggregate number of shares of Common Stock held by authorized carriers constitutes substantially less than 50% of the total number of shares of Common Stock then outstanding, to submit to the Congress a request in substance to the effect that the Act be amended to provide that, as nearly as may be, the number of directors to be elected by shareholders which are authorized carriers (holders of Series II shares), and the number of directors to be elected by other shareholders (holders of Series I shares), shall be in proportion to the respective aggregate numbers of shares of Common Stock held by the holders of shares of each such Series.

# Transfer Procedures

The Board of Directors is authorized to establish procedures with respect to the transfer of shares of Common Stock to enforce the limitations referred to under "Restrictions on Ownership and Transfer", above. Procedures established by the Board of Directors require that, in connection with each transfer of shares on the books of the Corporation, the transferee complete an application for transfer of the shares. Such application calls for information about the transferee's citizenship status, relationship with communications common carriers and other matters related to the limitations on ownership and transfer of shares of Common Stock. Such an application for transfer must also be completed by each person who purchases shares from any of the Underwriters.

Neither the Act nor the Articles of Incorporation define the respective rights, as between themselves, of the seller and purchaser of shares where, because of the restrictions on the ownership and transfer of shares, the purchaser is not entitled to have the shares transferred to him on the books of the Corporation. The respective rights of the seller and purchaser in such a case would be determined under the laws or other rules applicable to such sale. The Articles of Incorporation provide, however, that nothing in the provisions thereof limiting the ownership and transfer of shares shall be deemed to affect the right of the purchaser in such a case to transfer his interest in the shares to any person who, under the provisions of the Act and the Articles, lawfully may acquire such interest.

#### Miscellaneous

No conversion rights, preemptive rights, redemption rights or sinking fund provisions are applicable to the Common Stock. Shares of Common Stock offered hereby will be fully-paid and non-assessable.

Under the provisions of the Act, shares of Common Stock owned by an authorized carrier are not eligible to be included in the rate base of such carrier.

The Corporation will furnish to its shareholders annually a report containing certified financial statements.

Under the provisions of the Act, the Corporation is authorized to issue, in addition to shares of Common Stock without par value, non-voting securities, bonds, debentures, and other certificates of indebtedness as it may determine. The Articles of Incorporation at present provide for the issuance only of Common Stock without par value having the voting rights described above. The issuance of any securities other than the shares offered by this Prospectus, and the borrowing of moneys or assumption of any obligation in respect of securities of others, are subject to authorization by the FCC.

COMMUNICATIONS SATELLITE CORPORATION:

We have examined the financial statements of Communications Satellite Corporation listed below:

Statement of assets, preliminary survey, research, development, and organization expenses, and liabilities and capital, December 31, 1963.

Statement of cash receipts and disbursements for the period from February 1, 1963 (date of incorporation) to December 31, 1963.

Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the assets, preliminary survey, research, development, and organization expenses, and liabilities and capital of the Corporation at December 31, 1963 and the cash receipts and disbursements of the Corporation for the period from February 1, 1963 to December 31, 1963, in conformity with generally accepted accounting principles consistently applied.

HASKINS & SELLS

Washington, D. C., February 28, 1964

# COMMUNICATIONS SATELLITE CORPORATION

STATEMENT OF ASSETS, PRELIMINARY SURVEY, RESEARCH, DEVELOPMENT, AND ORGANIZATION EXPENSES, AND LIABILITIES AND CAPITAL December 31, 1963 and (Unaudited) March 31, 1964

ASSETS, AND PRELIMINARY SURVEY, RESEARCH, DEVELOPMENT, AND ORGANIZATION EXPENSES

PROPERTY AT COST:	December 31, 1963	March 31, 1964 (Unaudited)
Furniture, office equipment, and automobiles  Leaseholds	\$ 80,405 20,983	\$ 93,775 34,891
TotalLess accumulated depreciation and amortization	101,388 14,192	128,666 20,504
Property—Net	87,196	108,162
Current Assets: Cash Advances and deposits Prepayments—Insurance, rent, etc.	246,807 3,500 6,285	288,417 1,772 4,285
Total Current Assets	256,592	294,474
Other Assets	2,000	2,000
Preliminary Survey, Research, Development, and Organization Expenses (Note 1)	1,012,985	1,444,978
Total	\$1,358,773	\$1,849,614
LIABILITIES AND CAPITAL		
CAPITAL—Common stock—authorized, 100 shares without par value, issued and outstanding, 14 shares. (Authorized shares increased to 10,000,100 shares subsequent to March 31, 1964)—See "Description of Common Stock"	\$ 1,400	\$ 1,400
Current Liabilities:  Notes payable to banks (Note 2)  Accounts payable  Accrued interest  Other (accrued salaries and payroll taxes accrued and withheld)	1,150,000 157,245 25,761 24,367	1,650,000 111,840 40,543 45,831
Total Current Liabilities	1,357,373	1,848,214
Commitments (Note 4) Total	\$1,358,773	\$1,849,614
The accompanying Notes to Financial Statements are an integral part of the	his Statement.	imusica flora

For the Period from February 1, 1963 (Date of Incorporation) to December 31, 1963 and (Unaudited) for the Three Months Ended March 31, 1964

	February 1, 1963 to December 31, 1963	Three months ended March 31, 1964 (unaudited)
Receipts:		
Bank loans	\$1,150,000	\$ 500,000
Sales of common stock	1,400	
Maturity of temporary investments (interest income has been	E Proceduration	
deducted from interest expense)	198,754	
Total Receipts	1,350,154	500,000
Disbursements:	Canada ha the	THE A. THERE
Purchases of furniture, office equipment and automobiles—net	80,405	13,462
Leasehold costs	20,983	13,908
Advances and deposits—net (credit)	3,500	(1,728)
Prepayments—Insurance, rent, etc.—net (credit)	6,285	(2,000)
Purchase of temporary investments	198,754	(=,000)
Other assets	2,000	
penses (Note 1)	1,012,985	431,993
Total Disbursements (accrual basis)	1,324,912	455,635
Add accounts payable and accrued liabilities at beginning of period (settled by cash disbursements or continued as liabilities at end		
of period)		207,373
Deduct amounts included above which have not involved cash dis- bursements and which are represented by the following at the end of the respective periods:		
Accounts payable, accrued interest, accrued salaries, and payroll taxes accrued and withheld	(207,373)	(198,214)
Allowance for depreciation and amortization	(14,192)	(6,404)
	My mland of ald	(0,404)
Total Disbursements (cash basis)	1,103,347	458,390
NET INCREASE IN CASH DURING PERIOD	246,807	41,610
Cash Balance at Beginning of Period		246,807
Cash Balance at End of Period	\$ 246,807	\$ 288,417
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The accompanying Notes to Financial Statements are an integral part of this Statement.

## COMMUNICATIONS SATELLITE CORPORATION

NOTES TO FINANCIAL STATEMENTS

December 31, 1963 and (Unaudited) March 31, 1964

. Preliminary Survey, Research, Development, and Organization Expenses

These amounts represent expenditures for organization matters, hearings and negotiations, research and development, and other corporate activities incident to the formation of a program for the creation of an international communications satellite system. The amounts for the three months ended March 31, 1964 include legal and accounting fees and printing costs approximating \$25,000 in connection with the proposed sale of capital stock contemplated by this Prospectus; and such amounts will constitute part of the capital stock expense of the issue. It is anticipated that as or after the system is developed, the expenditures described in this note, as well as additional expenditures of generally similar character, will be transferred to utility plant, amortized against income of future years, or otherwise disposed of as the Federal Communications Commission may approve or direct. A summary of these expenditures for the periods indicated is as follows:

Herni Lynch, Pierce Fenner & Smith 70 Pine Street, Intemporated  Both & Co., Inc.  Lynch A Co., Inc.  Lynch	February 1, 1963 (Date of Incorporation) to December 31, 1963	Three Months Ended March 31, 1964 (Unaudited)	Total
Organization expenses (legal fees and other expenses prior to incorporation)	\$ 81,692		\$ 81,692
Salaries of officers and employees	459,381	\$ 234,923	694,304
Fees of directors	23,600	5,200	28,800
Legal, accounting, and other professional fees	70,145	38,323	108,468
Travel and related expenses	36,316	27,294	63,610
Office rent and maintenance	33,783	18,921	52,704
Printing, stationery, and office expenses	34,182	25,038	59,220
Employees' relocation expenses and insurance benefit premiums	22,046	9,678	31,724
Technical consultants, data processing costs, and contract services incident to research program	173,457	31,641	205,098
Interest on notes payable (net of \$1,246 interest received on temporary investments)	24,514	14,783	39,297
Taxes and licenses	13,208	9,116	22,324
Depreciation and amortization	14,192	6,404	20,596
Other expenditures	26,469	10,672	37,141
Total	\$1,012,985	\$ 431,993	\$1,444,978

2. Notes Payable to Banks

The notes payable to banks represent borrowings under a commitment of the lending banks to make loans to the Corporation, not exceeding \$5,000,000, as the Corporation may from time to time request. Borrowings under the agreement are subject to specific authorizations of the Federal Communications

Commission. The Corporation has been authorized by the Federal Communications Commission to borrow \$1,900,000. Orders of the Commission provide that funds obtained from such borrowings may not be used for operating expenses subsequent to May 30, 1964, without prior authorization of the Commission. Under the loan agreement, as amended and supplemented in February 1964, the commitment of the banks expires on June 30, 1964. The notes also mature on that date, subject to the provision of the agreement that each note is payable prior to its stated maturity date on the tenth day after receipt by of such shares.

# 3. FEDERAL COMMUNICATIONS COMMISSION

The Corporation is subject to regulation by the Federal Communications Commission as explained under "Regulation". The Federal Communications Commission has not approved or reviewed the accounting procedures employed by the Corporation to date. The inclusion of the financial statements in this Prospectus should not be regarded as approval by the Federal Communications Commission as to the accuracy of any material therein nor of the accounting procedures used. The Federal Communications Commission may prescribe a system of accounts for the Corporation which may require modification of existing accounting procedures.

## 4. COMMITMENTS AND GENERAL

The Corporation has certain commitments in connection with its program for the development and establishment of a commercial communications satellite system. For a summary of the program, the range of estimated costs, and significant contract information, see "Program of the Corporation". The Corporation also has entered into short-term leases, with renewal options, for office space. Reference is also made to the matters referred to under "The Venture and Its Risks".

#### UNDERWRITING

The Underwriters named below, acting through their Representatives named on the cover page of this Prospectus, propose to enter into a Purchase Contract with the Corporation pursuant to which they will severally agree, subject to the terms and conditions of the Purchase Contract, to purchase from the Corporation a number of shares of Common Stock to be set forth below opposite their respective names. Under certain circumstances involving default of Underwriters, less than all of such shares of Common Stock may be purchased by the remaining Underwriters. Under certain circumstances the commitments of non-defaulting Underwriters may be increased. Under the provisions of the Purchase Contract the obligation of the Underwriters to purchase the shares of Common Stock specified in the Purchase Contract will be subject, among other things, to the receipt by the Corporation from authorized carriers of the purchase price for at least 90% of the shares of Common Stock subscribed for by authorized carriers, after applying the allocation formula set forth under "Carrier Subscription Matters".

of authorized carrier, nothing carried	view of the POC's authority under Section to reell shares of the Corporation to another than the corporation of the corporation	Number of Shares to be Purchased
Name of Underwriter	Address of Underwriter	Furchased
Merrill Lynch, Pierce, Fenner & Smith Incorporated	70 Pine Street, New York 5, N. Y.	
Blyth & Co., Inc.	14 Wall Street, New York 5, N. Y.	
The First Boston Corporation	20 Exchange Place, New York 5, N. Y.	
Kidder, Peabody & Co. Incorporated	20 Exchange Place, New York 5, N. Y.	
Kuhn, Loeb & Co. Incorporated	30 Wall Street, New York 5, N. Y.	
Lazard Frères & Co	44 Wall Street, New York 5, N. Y.	
Lehman Brothers	One William Street, New York 4, N. Y.	
Carl M. Loeb, Rhoades & Co	42 Wall Street, New York 5, N. Y.	
Paine, Webber, Jackson & Curtis	25 Broad Street, New York 4, N. Y.	
White, Weld & Co. Incorporated	20 Broad Street, New York 5, N. Y.	
Dean Witter & Co	45 Montgomery Street, San Francisco 6, Calif	Grandaniko Ga

[As stated under "Offering to Public", approximately 350 additional underwriters located throughout the United States are being invited to participate in the offering. The names and addresses of the additional Underwriters, and the number of shares to be purchased by each of the Underwriters, will be set forth in an amended Prospectus.]

In the proposed Purchase Contract the Underwriters will agree to use their best efforts to offer the Common Stock in a manner to encourage the widest distribution of the shares to the American public. See "Offering to Public". Reference is made to the Purchase Contract filed as an exhibit to the Registration Statement, for the terms of such agreement.

The Common Stock offered by the several Underwriters is offered subject to prior sale and when, as and if issued by the Corporation and accepted by the Underwriters, and subject to the approval of certain legal matters by their counsel, Messrs. Brown, Wood, Fuller, Caldwell & Ivey, and by counsel for the Corporation, Allen E. Throop, Esq., and Messrs. Wilmer, Cutler & Pickering, and the Underwriters reserve the right to withdraw, cancel or modify such offer and to reject orders in whole or in

The Corporation has agreed to indemnify the Underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

# CARRIER SUBSCRIPTION MATTERS

The FCC has reserved the right, by means of a specific reservation in the authorizations issued to carriers, to allocate stock among the authorized carriers in the event of an oversubscription of the stock reserved for sale to such carriers. By letter dated April 30, 1964, however, the FCC has informed the Corporation that it will not make any allocation of stock pursuant to this reservation, provided the Corporation allocates the stock in the manner and to the extent set forth below. The letter also stated that, in view of the FCC's authority under Section 304(f) of the Act to require one authorized carrier to sell shares of the Corporation to another authorized carrier, nothing contained in the allocation formula should be construed to limit or restrict in any way the right of any authorized carrier to apply to the FCC for relief pursuant to the provisions of the aforementioned Section, nor from obtaining relief pursuant to any action of the FCC instituted in accordance therewith.

In the event that the total number of shares subscribed for by all authorized carriers exceeds the number of shares (5,000,000) reserved for offering to such carriers, the reserved shares will be allocated among the subscribing carriers on the following basis (with adjustment of odd amounts, as the Corporation may determine to a multiple of 100 shares):

- 1. If there are two or more subscriptions each for more than 50% of the reserved shares, each such subscription shall be reduced to 50% of the reserved shares.
- 2. If there is a single subscription for more than 50% of the reserved shares, such subscription shall be reduced until it equals 50% of the reserved shares or until the amount of oversubscription is eliminated, whichever occurs first.
- 3. If no subscription is for more than 50% of the reserved shares, or if an oversubscription remains after reduction is made as provided for in paragraph 1 or 2 above, then all subscriptions for more than 5,000 shares (including the remainder of any subscriptions reduced to 50% of the reserved shares, as hereinabove provided) shall be reduced *pro rata*, on the basis of the amount by which each such subscription exceeds 5,000 shares, until the amount of oversubscription is eliminated.
- 4. In no event shall the above formula be applied to any subscription for 5,000 or less shares or to reduce any subscription below 5,000 shares.
- 5. For the purpose of this formula, subscriptions of affiliated authorized carriers shall be treated as one combined subscription. An authorized carrier will be considered affiliated with another authorized carrier if it directly, or indirectly through one or more intermediaries, controls, or is controlled by, such other carrier or is under common control with such other carrier. In determining whether authorized carriers are affiliated, the Corporation will rely upon advice received from the Federal Communications Commission.

6. When a reduction is made in a combined subscription consisting of subscriptions of two or more affiliated carriers, the reduction shall be applied *pro rata* among the respective constituent subscriptions of such affiliated carriers, notwithstanding the fact that any such constituent subscription is for 5,000 or less shares or would be reduced below 5,000 shares, but subject to adjustment of odd amounts to a multiple of 100 shares.

The determinations of the Corporation reasonably made in the application of the formula set forth above, including determinations made with respect to the combining of subscriptions of affiliated authorized carriers, the *pro rata* reduction of subscriptions, and the adjustment of subscriptions to multiples of 100 shares, shall be conclusive and binding upon all persons having an interest in the allocation of shares among authorized carriers.

#### LEGAL OPINIONS

The legality of the shares of Common Stock offered hereby will be passed upon for the Corporation by Allen E. Throop, Esq., Vice President and General Counsel of the Corporation, and Messrs. Wilmer, Cutler & Pickering, 900 17th Street, N.W., Washington, D. C., and for the Underwriters by Messrs. Brown, Wood, Fuller, Caldwell & Ivey, 70 Pine Street, New York, N. Y. In respect of matters of law of the District of Columbia, Mr. Throop and Messrs. Brown, Wood, Fuller, Caldwell & Ivey will rely on said opinion of Messrs. Wilmer, Cutler & Pickering.

#### **EXPERTS**

The Statement of Assets, Preliminary Survey, Research, Development, and Organization Expenses, and Liabilities and Capital (December 31, 1963) and the Statement of Cash Receipts and Disbursements for the Period from February 1, 1963 (date of incorporation) to December 31, 1963 included in this Prospectus have been examined by Haskins & Sells, independent public accountants, as stated in their opinion appearing herein, and have been so included in reliance upon such opinion given upon the authority of that firm as experts in accounting and auditing.

# PROSPECTUS

10,000,000 Shares

# Communications Satellite Corporation

Common Stock (without par value)

The Corporation is not an agency or establishment of the United States Government.

In conformity with the Communications Satellite Act of 1962, 50% of the shares of Common Stock to which this Prospectus relates were reserved for subscription by communications common carriers authorized by the Federal Communications Commission to own stock of the Corporation. As of the close of business on June 1, 1964, there were in effect subscriptions of authorized carriers, revocable until accepted by the Corporation, for all the reserved shares. The Underwriters are purchasing from the Corporation for sale to the public the 5,000,000 unreserved shares. See "Offering of Common Stock".

There is at present no market for the Common Stock of the Corporation. The New York, Midwest and Pacific Coast Stock Exchanges have approved the listing of the Common Stock on such Exchanges, subject to certain conditions. See "Description of Common Stock".

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION NOR HAS THE COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

mounications), and (ii) such entities will share M	Offering Price	Underwriting Discount	Proceeds to Corporation*
Per Share: Public (5,000,000 shares) Authorized Carriers (5,000,000 shares)	\$20 \$20	\$ None	\$ \$20
Total:	\$200,000,000	\$ 4400 04 29	\$

\* Before deducting expenses payable by the Corporation estimated at \$650,000.

Merrill Lynch, Pierce, Fenner & Smith

Blyth & Co., Inc.

The First Boston Corporation Kidder, Peabody & Co.

> Kuhn, Loeb & Co. Incorporated

Lazard Frères & Co. Lehman Brothers

Carl M. Loeb, Rhoades & Co.

Paine, Webber, Jackson & Curtis White, Weld & Co. Incorporated

Dean Witter & Co.

June , 1964.

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IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVERALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE COMMON STOCK AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH TRANSACTIONS MAY BE EFFECTED ON THE NEW YORK, MIDWEST OR PACIFIC COAST STOCK EXCHANGES OR IN THE OVER-THE-COUNTER MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

## THE CORPORATION

Communications Satellite Corporation (the Corporation) was incorporated under District of Columbia law on February 1, 1963, as authorized by the Communications Satellite Act of 1962 (the Act). The Act states that it is the policy of the United States to establish, in cooperation with other countries, as expeditiously as practicable, a commercial communications satellite system, as part of an improved global communications network, and that United States participation in the system shall be in the form of a private corporation, subject to appropriate Government regulation. The Corporation has been created in pursuance of such national policy, but the Corporation is not an agency or establishment of the United States Government. The United States Government has not guaranteed funds invested in the stock of the Corporation, the payment of dividends on shares of such stock, or the profitability of the venture in which the Corporation proposes to engage.

In accordance with the Act, the Corporation plans to establish and operate a global commercial communications satellite system in cooperation with telecommunications entities in other countries, certain of which are agencies of foreign governments. Such a system would use satellites placed in orbit around the earth to relay telecommunications between terminal stations in the United States and in other countries. Terminal stations in the United States would be connected with communications systems owned and operated by common carriers that provide telephone and other telecommunications service to the public. Terminal stations in other countries would be connected with communications systems that provide such service there.

It is expected that (i) telecommunications entities in other countries will provide and operate terminal stations in such countries (without which there cannot be a satellite system for international telecommunications), and (ii) such entities will share with the Corporation the costs of establishing the space segment of the system (comprising the satellites and the command and control facilities on earth), which would be jointly owned by the Corporation and such entities in proportion to their respective investments. It is contemplated that equitable allocations of the communications capacity of the space segment would be made to such joint owners and others. The Corporation would utilize its allocation to furnish satellite channels for hire to United States communications common carriers and other authorized users. It is expected that the charges made to United States carriers for use of such channels would be a principal source of the Corporation's revenue. Arrangements with telecommunications entities in other countries have not yet been made. The Corporation intends to proceed with its program for the establishment of the system while such arrangements are being negotiated. See "International Arrangements for System".

The Act embodies a comprehensive plan for the conduct of the business and affairs of the Corporation. It includes provisions governing the Corporation with respect to matters that, in the case of other communications common carriers in the United States, are not ordinarily subject to Government supervision or control. The Act defines the powers of the Corporation and the relationships of the Corporation to the President of the United States and various agencies of the United States Government which have responsibilities in carrying out the purposes of the Act. Under the provisions of the Act, the President of the United States has approved the Corporation's Articles of Incorporation, and he is directed by the Act, among other things, to exercise authority over the relationships of the Corporation with foreign governments and entities. The Act directs the Federal Communications Commission (the FCC) to exercise authority over certain aspects of the affairs of the Corporation, including the rates charged by it. See "Regulation".

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# THE VENTURE AND ITS RISKS

The Corporation proposes to engage solely in operations based on recent developments in space and communications technology. Careful consideration should be given to the matters referred to in the following summary, as well as to the information set forth elsewhere in this Prospectus.

- (1) Experimental communications satellites have been placed in orbit and operated in programs conducted by the United States Government and private United States firms (other than the Corporation); but the establishment of a communications satellite system, capable of providing commercially useful service, has never before been attempted.
- (2) Satellite systems of several different types are believed to be practicable for commercial purposes. To provide further information relevant to the selection of a type of system, the Corporation plans to conduct experiments and limited operations by means of a satellite to be launched by mid-1965. The program of the Corporation contemplates that the type of system to be established will not be determined before the latter part of 1965. It is anticipated that the system selected will be ready to provide service between certain areas beginning in 1966, but that the system will not be in full operation before the latter part of 1967. The dates referred to in this paragraph are approximations only, and every reference in this Prospectus to an anticipated date of a particular step in the program of the Corporation is subject to that qualification and to the qualification that unforeseen developments may either delay or prevent the carrying out of the program.
- (3) It is anticipated that the Corporation will not have significant operating revenue until the system is in full operation. In view of the risks of the venture, the Corporation may not realize significant operating revenue for a period after full system operations commence, and the Corporation may operate at a loss for several years after commencement of full system operations. In view of such risks, the period during which operations are conducted at a loss may be even more extended. No dividends will be paid on the Common Stock for an indeterminate period.
- (4) A communications satellite system of any type requires rockets or other launch vehicles that will place the satellites in the intended orbit, and the costs of launch vehicles will represent a major element in the costs of establishing a communications satellite system. It is contemplated that satellites for the system will be launched by vehicles developed in United States defense and space programs. The reliability of such vehicles is being further improved, but the risk of launch vehicle failure is an important risk inherent in an attempt to establish a satellite system of any type,

Consequences of launch vehicle failure will include loss of the vehicle and of the satellite or satellites carried by the vehicle, and, if the failed vehicle causes injuries or damage, may also include liability therefor.

- (5) A communications satellite system of any type requires satellites which will remain operable for a considerable period. On the basis of information derived from experimental communications satellite programs, it is believed that satellite operating lifetimes of the duration necessary for a commercial system can be achieved, but the risk of early failure of satellites in orbit also is an important risk inherent in an attempt to establish a satellite system of any type. Failure of satellites in orbit may necessitate the launching of replacement satellites (involving additional launch vehicle costs) and may also cause interruption or suspension of service, with consequent loss of revenue.
- (6) Certain techniques and devices, not yet proved in actual operations, are regarded as important to the commercial feasibility of certain types of satellite systems, or as important to highly efficient operations of any type of system. These include the launching of several communications satellites by a single launch vehicle (of importance to the commercial feasibility of a system consisting of a large number of satellites); techniques or devices to enable more than two terminal stations to communicate simultaneously via a single satellite without significant reduction in the satellite's communication capacity; and devices to control the attitude of satellites in orbit so that signals emitted by the satellite are directed toward the earth only.
- (7) The demand for international telecommunications services (particularly telephone service) has increased continuously since the end of World War II, and, if the demand continues to increase, additional facilities of some kind will be required within the next few years to assure adequate telecommunications service between North America and Western Europe (commercially the most important route at present) and over certain other routes. The program of the Corporation to establish, in cooperation with other telecommunications entities, a commercial communications satellite system is based on the belief that the demand for international telecommunications services will continue to grow and on the expectation that the satellite system, in competition with facilities operated by others, will serve an important and increasing volume of international telecommunications traffic. It is expected that, in the early years of system operations, revenues from the use of satellite channels for telephone service will constitute by far the most important element in total revenues from system operations, and that revenues from television transmissions will not be significant in terms of such total revenues.
- (8) The satellite system will compete with submarine telephone cable systems between North America and Western Europe and on certain other routes, and with high-frequency radio facilities generally. Such cable systems and radio facilities are owned by certain of the United States carriers and telecommunications entities in other countries which are prospective users of the satellite system. American Telephone and Telegraph Company (AT&T) is the principal United States owner of submarine telephone cable systems. The submarine cable systems with which the satellite system will compete may include cable systems of greatly increased efficiency now under development by AT&T and others. AT&T has stated an intention, subject to certain conditions, to lease satellite system channels of commercial quality, and other United States carriers have indicated an interest in so doing; but the Corporation has not obtained firm commitments therefor. The competitive position of the Corporation will depend on its ability to develop and operate a satellite system that will provide

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(9) The venture depends on the cooperation of telecommunications entities in other countries. Although many of such entities have indicated interest in the venture, the Corporation has not obtained the commitments of any such entities to provide the foreign terminal stations essential to the operations of a satellite system, or to join with the Corporation in the ownership (and payment of the costs) of the space segment of the system, or to use the system.

(10) The negotiation and carrying out of international arrangements for the system may be impeded or prevented by international political developments that are not directly related to the system. Moreover, the system may not be designed to operate in spite of intentional interference (e.g., jamming) and, if the operations of the system are purposely interfered with by a foreign government, elimination of the interference would depend on action by the United States Government (or other interested governments).

(11) Other countries may have or may acquire the ability to establish and operate a satellite system which would compete with the system the Corporation proposes to establish. Governments of certain foreign countries from time to time have announced that communications satellite development activities are being pursued or considered in such countries; but the Corporation does not know of any plan for the establishment by any other country of a communications satellite system which would compete with the system contemplated by the program of the Corporation. Under provisions of law presently in effect, any such competing system could not provide telecommunications service between the United States and overseas points without authorization by the FCC.

(12) Under the provisions of the Act, the activities in which the Corporation has authority to engage are, in general, those related or incidental to the development, ownership and operation of a commercial communications satellite system as defined in the Act. In the event that future technological developments provide a basis for new types of communications systems which do not use earth satellites and satellite terminal stations on the earth's surface, the Corporation might be unable to take advantage of such developments without appropriate legislation. Such legislation might not necessarily be required by other enterprises.

(13) The Corporation has public responsibilities under the Act, as well as responsibilities to its shareholders. Among other things, in the interests of national policy, the Corporation may be required to provide certain communications services to particular foreign points in circumstances in which it would be contrary to the business judgment of the Corporation to do so.

(14) The Corporation does not presently hold any patent rights. The manufacture and operation of the equipment and facilities required for a commercial communications satellite system may involve the use of inventions which are or may be subject to patent rights held by others. Furthermore, it is expected that although equipment and facilities for the system will generally be procured on a competitive basis, some items may be available only from a single source of supply because of know-how, production capacity or other unique qualifications possessed by such source. However, it is believed that access to such patent rights or single sources of supply, or to satisfactory alternatives, should be obtainable on reasonable terms.

## OFFERING OF COMMON STOCK

Offering to Authorized Carriers

In conformity with the Act and the Corporation's Articles of Incorporation, 50% of the 10,000,000 shares of Common Stock to which this Prospectus relates were reserved until the close of business on May 26, 1964, for subscription by communications common carriers authorized by the FCC to own stock of the Corporation (authorized carriers). As of that time, 163 authorized carriers had submitted subscriptions, revocable until accepted by the Corporation, for an aggregate of 6,354,250 shares of Common Stock. There are set forth below, as of the close of business on June 1, 1964, (a) the name of each authorized carrier whose subscription relates to 5% or more of the 5,000,000 reserved shares and the number of shares to which the subscription of each such carrier relates, and (b) the aggregate number of shares to which the subscriptions of authorized carriers (other than those named) relate. The number of shares shown opposite American Telephone and Telegraph Company is the number of shares subscribed for by it, reduced by the application of the allocation formula set forth under "Carrier Subscription Matters".

Name	Number of Shares
American Telephone and Telegraph Company International Telephone and Telegraph Corporation General Telephone & Electronics Corporation RCA Communications, Inc. Other Authorized Carriers	350,000 shares 250,000 shares
Total	5,000,000 shares

\* May be subject to minor adjustment on determination of certain matters.

The subscriptions referred to above are subject to revocation (in full but not in part) at any time prior to the acceptance thereof by the Corporation after the effectiveness of the Registration Statement covering the shares of Common Stock to which this Prospectus relates (the Registration Statement).

The obligations of authorized carriers to purchase shares subscribed for by them are subject to certain conditions, including the conditions that (a) the Registration Statement shall have become and shall remain effective, and (b) the sum of the aggregate purchase price for shares covered by accepted subscriptions of authorized carriers and the net proceeds (after underwriting discount but before expenses) received by the Corporation for shares purchased by the Underwriters under the Purchase Contract referred to below shall amount to not less than \$190,000,000. The subscription of each authorized carrier which has subscribed for shares includes the agreement of such carrier that, unless compelled by the FCC in accordance with the provisions of the Act to transfer shares to another carrier, it will not, during a period of 60 days after the delivery to it of the shares of Common Stock purchased by it pursuant to the offering made by this Prospectus, sell or otherwise dispose of such shares otherwise than to an authorized carrier affiliated with it which is a party to a similar agreement with respect to the sale or other disposition of such shares during such 60-day period.

Offering to Public

The Underwriters have agreed to purchase from the Corporation for sale to the public the 5,000,000 unreserved shares. In the Purchase Contract between the Underwriters and the Corporation, the Underwriters have agreed to use their best efforts to offer the Common Stock in a manner to encourage the widest distribution of the shares to the American public. In addition to offering a portion of the shares directly to the public, the Underwriters will offer shares to over 800 dealers for resale to the public.

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At the request of the Corporation, an arrangement has been made whereby up to 25 shares of Com mon Stock will be allotted at the public offering price to any employee of the Corporation who may enter an order with Merrill Lynch, Pierce, Fenner & Smith Incorporated. The maximum number shares purchasable under this arrangement is approximately 2,000 shares.

The decisions of authorized carriers to purchase shares may be based on business consideration not applicable to purchasers other than carriers.

#### CAPITALIZATION

The following table sets forth the capitalization of the Corporation as of June 1, 1964 and adjusted to give effect to the sale of 5,000,000 shares of Common Stock to authorized carriers, th sale of 5,000,000 such shares to the Underwriters and the application of a portion of the proceeds of such sales to the payment of bank loans of the Corporation, as described under "Application of Proceeds"

Title of Class	Authorized	Outstanding	Adjusted
Bank loans due June 30, 1964  Common Stock, without par value*	10,000,100 shs.	\$1,850,000 14 shs.	None 10,000,014 shs.

\* The shares of Common Stock are issuable in two Series, designated Series I and Series II. As more fully set forth under "Description of Common Stock", and subject to the provisions of the Act and the Articles of Incorporation of the Corporation referred to therein, Series I shares are issuable to the public and Series II shares are issuable to communications common carriers authorized by the FCC to own stock of the Corporation.

# APPLICATION OF PROCEEDS

The net proceeds from the sale of the 10,000,000 shares of Common Stock are estimated at approxi-, after deducting estimated expenses. Approximately \$1,903,000 of such net proceeds will be applied to the payment of bank loans of the Corporation. The balance of such net proceeds ) will be applied to pay the costs and expenses to be incurred by the Corporation in carrying out its program over the next few years for the development and establishment of a commercial communications satellite system, and for related purposes. See "Program of the Corporation". It is contemplated that funds not at the time required for such purposes will be invested in obligations of the United States Government or in other interest-bearing obligations or deposits.

As indicated under "Program of the Corporation", the range of the costs which it is estimated will be incurred in carrying out the program of the Corporation is from \$190,000,000 to \$230,000,000. It is believed that the net proceeds from the sale of Common Stock, together with interest income and possible revenues from the operations of the experimental operational satellite proposed to be launched in 1965, will provide an amount sufficient to pay substantially all of the program costs which will be required to be paid by the Corporation. However, in view of the risks associated with the program and the possibility of changes in the program (including such changes as might result from modification of the program so as to satisfy certain requirements of the National Communications System), the actual costs

Corporation has not made any arrangements to provide such additional funds as may be required.

of the communications satellite system and may provide part of the capital necessary to pay the costs of establishing the space segment. The Corporation has not obtained the commitment of any such entity to bear any part of such costs. Other than as indicated above, the Corporation at present has no plans for the use of any of the net proceeds of this financing which, because of the sharing of costs by he telecommunications entities in other countries, or for any other reasons, may not be required by it to defray the costs of the program.

## SATELLITE COMMUNICATIONS

## ature of Satellite Communications

A communications satellite system would consist of satellites placed in orbit around the earth for purpose of relaying telecommunications between terminal stations at different places on the earth's urface. Telecommunications which would be so relayed would include telephone messages, television ignals, and "record traffic" of various types (message and other telegraph traffic, teleprinter exchange traffic (telex), and facsimile, photogram and data transmissions). Terminal stations would be operationally connected with telephone systems and other telecommunications facilities. Telecommunications would be transmitted (i) from the place of origin, through telephone lines or other facilities, to a terminal station, (ii) from the terminal station to a satellite in orbit, (iii) from the satellite to another terminal tation, and (iv) from the receiving terminal station, through telephone lines or other facilities, to he place of destination.

Communication by satellite between two terminal stations is possible only when a satellite is above e horizon (is "visible") at both terminal stations. If the satellite's orbit carries it below the horizon of ne of the terminal stations, communication between the stations will not be possible until the satellite again becomes visible to both stations or another satellite becomes visible to both stations. In such a case, o enable continuous communication between two terminal stations, a number of satellites would be necessary, so that before the last satellite visible to both terminal stations moves below the horizon of me of the stations, at least one other satellite will have become visible to both stations.

The number of satellites necessary to enable continuous communication between a pair of terminal ations depends primarily on the altitude and inclination of the orbits from the plane of the Equator and whether the spacings between the satellites are controlled. Fewer satellites would be necessary at any titude than would be necessary in an orbit of the same inclination at a lower altitude. The spacings etween satellites at the same altitude will not be uniform unless such spacings are established, after he satellites are in orbit, by use of "position control" equipment included in the satellites. A system of atellites the spacings between which are controlled during orbit (a controlled system) need include lewer satellites than a system of satellites at the same altitude which are not subject to such control (a random system). Altitudes within the range of from 5,000 to 10,000 miles are generally proposed for a System (controlled or random) which is to consist of a number of satellites that in turn disappear below

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the horizon and in turn become visible again. Satellites in orbit at such altitudes (medium altitudes) could be used for communication between terminal stations over transoceanic distances.

The orbital period of a satellite and the length of the time that a satellite would be above the horizon of a particular terminal station increase as the altitude of the orbit increases. In particular, if the velocity of a satellite in orbit above the Equator at an altitude of 22,300 miles is effectively controlled, the orbital period of such a satellite would be 24 hours—an orbital period synchronized with the rotation of the earth. A satellite in such an orbit (synchronous orbit) would be visible to terminal stations within an area including approximately one third of the earth's surface and would be visible to terminal stations within that area during its entire orbital period of 24 hours. To an observer at such a terminal station, the satellite would appear to remain stationary in the sky. A satellite in such a synchronous orbit could be used at any time for communication between terminal stations within that area located up to 10,000 miles apart. The orbit of a satellite at an altitude of 22,300 miles, which deviates slightly from the plane of the Equator, is also referred to in this Prospectus as a synchronous orbit. The usefulness for communications of a satellite in such an orbit would be substantially the same as that of a satellite in a true "stationary" orbit, exactly above the Equator. A true "stationary" orbit (or an orbit of such slight deviation) has not yet been achieved.

The quality of telephone communication by means of a satellite in synchronous orbit would be reduced by reason of the length of the time (approximately three-tenths of a second) required for transmission of the signal to the satellite and back to earth (a delay which tends to interfere with the normal rhythms of conversation), and by the inter-acting effects of echo suppressors of existing types which must be used. There is not yet sufficient experience to indicate clearly whether or not telephone service by means of satellites in synchronous orbit will be of a quality that is generally acceptable to the public.

The principal components of any satellite which relays signals between terminal stations are (i) a receiver and related antenna, for the reception of signals from terminal stations, (ii) a transmitter and related antenna, to amplify and return signals to terminal stations, and (iii) a system to provide electrical energy for the satellite's receiver and transmitter. The principal components of a terminal station for any satellite system are, in addition to a source of electric power, a transmitter, a receiver, and at least one antenna. The orbital configuration of a satellite system greatly influences the nature of additional equipment which satellites and terminal stations must include. Placing and maintaining a satellite in synchronous orbit require that the satellite itself have position control equipment, to help achieve the synchronous orbit in the first instance and to overcome the effects of drift from such orbit. Satellites in a controlled medium altitude system also must have position control equipment, to establish the desired spacings between the satellites. Satellites in a random system need not include such equipment. To conduct the same operations, a terminal station for a medium altitude system must include twice the number of antennas required in a terminal station for a synchronous satellite system.

Command and control facilities (including computers and other equipment for tracking, guidance and control of satellites) also are necessary to satellite system operations.

#### Launching of Satellites

Rockets or other launch vehicles capable of placing objects of substantial weight in orbit are essential to a communications satellite system. Such vehicles have been developed in the United States in recent

years in connection with United States Government space and defense programs. The reliability of such vehicles has been improved in the course of such programs, and agencies of the Government and others engaged therein are carrying out activities intended to increase launch vehicle reliability to a further degree; but the risk that one or more launch vehicles will fail to place satellites in a planned orbit may continue to be a significant factor throughout the period during which the Corporation proposes to create a commercial satellite system.

Costs of launch vehicles, and related vehicle launching expenses, are a major part of the aggregate cost of creating any satellite system. A medium altitude system may not be commercially feasible unless several satellites can be placed in the intended orbit by a single launch vehicle. In experiments conducted by agencies of the United States Government, as many as five objects have been placed in orbit by a single launch vehicle. Such objects were not communications satellites, and the orbits achieved were orbits at substantially lower altitudes than those contemplated for the satellites of a medium altitude system. The techniques necessary for a "multiple launch" of communications satellites would be the same as those successfully employed in such experiments; but no attempt has thus far been made in the United States to place more than one communications satellite in orbit by use of a single launch vehicle.

## Satellite Lifetime

Satellites in orbit are subject to being damaged by radiation, by collision with natural objects and by other events in space. Damage resulting from any of such causes, or a failure of satellite components for other reasons, may interrupt or terminate the operation of the satellite. Certain of the experimental satellites launched in the United States experienced damage or failure of components within relatively short times after being placed in orbit. Three of the experimental satellites have operated for periods of nine months or longer (the longest such period being approximately 16 months). Certain of the experimental satellites launched in the United States are still in operation. See "Experimental Communications Satellites".

Failure of a satellite in orbit may impair or prevent communication service between the terminal stations to which the satellite is visible. In the case of a medium altitude system, the failure of a satellite is likely to result in interruptions of service during periods of predictable occurrence and length, corresponding to the periods during which the inoperative satellite is the only satellite visible to the terminal stations. Such periods of interruption will be longer if the system is a controlled system than if the system is a random system. If communication between two terminal stations is provided by a single synchronous satellite and there is not a "standby" satellite in orbit, failure of the satellite will prevent communication at any time until the satellite is replaced. Costs of replacing a satellite that has failed in orbit include the costs of the replacement satellite, the costs of a launch vehicle and related vehicle launching expenses. For a commercial system, the impairment or suspension of service resulting from satellite failure may also result in loss of substantial revenue until service can be restored by the successful launching of the replacement satellite.

## Experimental Communications Satellites

Experimental communications satellites have been developed and placed in orbit in programs conducted by agencies of the United States Government and by private American companies other than the

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# Experimental Communications Satellites (United States)

Name(a)	Launch Date	Altitude of Initial Orbit (statute miles)	Operating Lifetime of Telecommunications System	Telecommunications Transmissions
Score omized placed in orbit orbits achieved	December 18, 1958	115 to 914 vd	13 days (design life)	Voice and telegraph, including delayed signal repetition and rebroadcast of recorded mes- sage.
Courier I-A	August 18, 1960	Failed to orbit (launch vehicle exploded)	altitudes than those conved in such experiment	e orbits at substantially lower tent. The techniques necessare as those successfully emplo
Courier I-B	October 4, 1960	586 to 767	17 days	Voice, telegraph and telephoto, including voice transmission to Puerto Rico.
Telstar I	July 10, 1962	593 to 3,503	189 days(b)	Television, voice, telegraph, data and telephoto, including trans- Atlantic transmissions.
	December 13, 1962		r terminate the opera States experienced dan	Television, voice, telegraph, data and telephoto, including transmissions between the U. S. and Western Europe and South America, and between the U. S. and Japan.
Syncom I	February 13, 1963	21,268 to 22,974	Communication lost at injection into orbit.	uths or longer (the longest st chites launched in the Unit
Telstar II	May 7, 1963	604 to 6,713	358 days(d)(e)	Similar to Telstar I.
Syncom II	July 26, 1963	22,240 to 22,247 (orbit very nearly circular and synchro- nous)	bit may a (b) syab 208 visible. In the case of ms of service during	Voice, telegraph, data and telephoto, including transmissions between the U. S., Western Europe and Africa.
Relay II	January 21, 1964	1,325 to 4,600	127 days(d)	Similar to Relay I.

(a) Of the satellites referred to in the table, (i) Telstar I and Telstar II were designed and constructed by American Telephon (RCA) under contract with the National Aeronautics and Space Administration (NASA), (iii) Syncom I and Syncom I were designed and constructed by Hughes Aircraft Company under contract with NASA, (iv) communications equipment for Score was constructed by RCA for the Department of Defense, and (v) Courier IA and IB were constructed by Philosophical Corporation for the Department of Defense.

(b) Exclusive of a 40-day interruption (attributed to damage caused by radiation) in the operating lifetime stated. Termination

(c) Exclusive of (i) a 20-day period, immediately following launch, during which malfunction in satellite components prevent telecommunications transmission, and (ii) a 26-day period in April and May, 1964, during which the telecommunication system was inoperable.

(d) Computed to May 26, 1964, at which time the telecommunications system of the satellite was still operable.

(e) Exclusive of a 27-day interval during which the telecommunications system was inoperable for unknown reasons.

The experimental satellites Telstar I and II and Relay I and II have been used successfully for transmission of the principal kinds of telecommunications which a commercial system would serve over distances comparable to those which commercial service would require. The experimental satellite Syncom II has also been used successfully for the transmission over such distances of the principal kinds of telecommunications which commercial service would require, except that television signals transmitted through Syncom II have not been of commercial quality. In addition, the experimental satellite programs have provided much information relevant to the design of satellites for a commercial system.

The improvements in experimental satellites which are essential for the satellites of a commercial system are primarily those related to the achievement of reliability of components through careful selection and intensive testing. In addition, certain anticipated developments in components or techniques generally are regarded as important to communications satellite operations of highest efficiency, viz., (i) development of techniques which will enable a satellite to communicate simultaneously with more than two terminal stations without material reduction in the satellite's overall communication capacity, and (ii) development of devices which can be used to control the attitude of satellites for extended periods of time, so that signals emitted by the satellite are directed toward the earth only.

The terminal station facilities principally used in connection with the operation of the experimental satellites referred to in the table have been, in respect of facilities in the United States, experimental terminal stations constructed by communications common carriers or facilities of the United States Government, and, in respect of facilities outside the United States, experimental terminal stations constructed by foreign telecommunications entities, including such facilities in the United Kingdom, France, Italy, Brazil and Japan. Telecommunications entities in other foreign countries (including Canada and the Federal Republic of Germany) are engaged in the construction of terminal station facilities in such countries.

## PROGRAM OF THE CORPORATION

# Activities to Date

The Corporation has been engaged in various activities leading to the creation of a commercial communications satellite system. It has established its offices in leased premises in Washington, D. C. Technical and economic studies are being carried out by the staff of the Corporation and by firms under contract with the Corporation, including studies of factors affecting the design of a satellite system, studies with respect to potential telecommunications traffic which such a system might serve, and studies relating to the minimum specifications and characteristics of an initial communications satellite system. Expenses incurred in connection with these activities have been financed by bank borrowings.

# Summary of Program and Estimated Costs

The Board of Directors of the Corporation has approved a program for the development and establishment of a commercial communications satellite system. The principal elements of the Corporation's program, and the estimated costs of each element in the program, are summarized below. The cost estimates shown are approximations only, and, in view of various factors referred to below, the actual costs of the program as a whole, or of particular elements in the program, may considerably exceed such estimates. The estimates do not reflect such additional costs as would be involved if the program were modified to satisfy certain requirements of the National Communications System. See "National Communications System Program". The cost estimates in the summary do not include any amount covering the expenses to be incurred in maintaining an established system.

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Conduct of certain communications tests and limited operations by means of an experimental operational satellite proposed to be placed in synchronous orbit above the Atlantic Ocean in mid-1965.....

\$ 14,000,000 - \$ 20,000,000

SYSTEM DEVELOPMENT

Preparation of satellite engineering designs and development of prototype satellites of various types, preparatory to a decision, proposed to be made in the latter part of 1965, as to whether the commercial satellite system will be a medium altitude system or a synchronous system .....

\$ 55,000,000 - \$ 65,000,000

Manufacture and placing in orbit of satellites constituting a commercial communications satellite system, to provide limited service estimated to begin in 1966 and to be in full operation in the latter part of 1967 ..... Construction in the United States by mid-1966 of a command and

\$ 75,000,000 - \$ 90,000,000

control center for the satellite system ..... PROPOSED TERMINAL STATIONS

\$ 9,000,000 - \$ 10,000,000

\$ 17,000,000 - \$ 20,000,000

Construction by the Corporation of satellite terminal stations required in the United States\* .....

RESEARCH AND DEVELOPMENT AND ADMINISTRATION Additional research and development and administrative activities .. \$ 20,000,000 - \$ 25,000,000

Total ..... \$190,000,000 - \$230,000,000

The Corporation has entered into an agreement for the design and manufacture of the experimental operational satellites, and has received proposals for the preparation of the satellite engineering designs, referred to in the foregoing summary. Except with respect to the equipment and services to which such agreement and proposals relate, the cost estimates in the foregoing summary are not based upon bids to provide equipment or services. Such estimates are based on information furnished to the Corporation by the United States Government and United States firms which have engaged in satellite experiments and in other phases of space programs. The Corporation expects to invite at the appropriate time competitive bids or proposals for the equipment and services required by its program, and does not presently plan to manufacture itself any of such equipment. The actual costs of the program summarized above may vary considerably from estimated costs, depending upon the characteristics of the system, unforeseen factors affecting adversely launching costs or costs of components, and technological developments or other factors. In view of the risks of the venture, the taking of any particular step in the program may be delayed for extended periods beyond the approximate date for such step referred to in the summary above.

The program of the Corporation summarized above may be changed in material respects by reason of unforeseen developments. Whether or not any such development occurs, the program is also subject to change by the Board of Directors of the Corporation that will succeed the present Board. See "Management". Changes in the program may also be made by reason of modification of the program to satisfy certain requirements of the National Communications System or by reason of the nature

or terms of the international arrangements to be negotiated for the system. See "National Communications System Program" and "International Arrangements for System". The carrying out of any program for the establishment of a commercial communications satellite system is subject, among other hings, to the continued effectiveness of the provisions of the Act which authorize the Corporation to carry out such a program, and to the authority of the agencies of the United States Government referred to under "Regulation".

## Experimental Operational Satellites

The Corporation plans to conduct communications tests and to provide certain commercial comunications services by means of a satellite to be placed in synchronous orbit over the Atlantic Ocean n mid-1965. The principal objectives of the program for such a satellite are to obtain information elevant to the selection and design of a commercial system (including information about public attitudes ward the time delays and echo suppression effects involved in telephone conversation via satellite n synchronous orbit) and also to provide experience in the conduct of operations. The particular satellite to be used in the program will be designed to provide up to 240 two-way telephone grade circuits between appropriately equipped terminal stations in North America and Western Europe. Such circuits could be used for telephone conversations, or for record traffic, or for the transmission of television signals. The capacity provided by one two-way telephone grade circuit is sufficient for the simultaneous transmission of 22 or more telegraph messages, depending on the terminal equipment used. The construction, launching and operation of the satellite are subject to the approval of the FCC. The Corporation has obtained such approval for the construction of the satellite, but has not yet made application for the other necessary approvals.

The Corporation has entered into an agreement with Hughes Aircraft Company, Culver City, difornia (Hughes Aircraft), for the design, manufacture, assembly and testing of two such satellites, for the manufacture of components for a third such satellite and for the performance of certain related ervices. The agreement provides for delivery of the first satellite in April, 1965, and for delivery of the second satellite later that year. Under the provisions of the agreement, the aggregate amount payable by the Corporation to Hughes Aircraft depends on whether the satellites are successfully implaced in orbit and, if successfully implaced, on the length of the period during which either of the two satellites is operable in accordance with certain operating standards specified in the agreement. Under such provisions, if neither satellite is successfully implaced in orbit, the aggregate amount payable by the Corporation to Hughes Aircraft would be \$7,885,000. If both satellites are successfully implaced, the minimum aggregate amount payable by the Corporation, whether or not either satellite is operable for any period, is \$6,335,000, and the maximum aggregate amount payable by the Corporation, which would be payable if each of the two satellites is operable for a period of 18 months or longer, would be \$10,835,000. The agreement also provides for additional payments by the Corporation to Hughes Aircraft in the event of the delivery of the first satellite in advance of the scheduled delivery date.

The Corporation expects to enter into an agreement with the National Aeronautics and Space dministration (NASA), an agency of the United States Government, for the furnishing to the Corporation by NASA of launch vehicles and launching services for two such satellites. The Act provides that NASA shall furnish launching services to the Corporation on a reimbursable basis. The Corporation has held preliminary discussions with NASA with respect to the furnishing by NASA of such launching services, but the terms of an agreement between the Corporation and NASA have not been determined.

<sup>\*</sup> Contingent on matters referred to under "Proposed Terminal Stations".

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It is expected that the vehicle to be used in the launching of each such satellite would be a Thor Delta rocket vehicle with three augmenting rockets attached. A total of 24 launchings of the Thor Delta rocket vehicle (without such augmenting rockets) has been attempted to date in connection with national space programs. Of such launching attempts, 22 were successful, including the launchings of the experimental satellites Syncom I and Syncom II. The launchings of Syncom I and Syncom II are the only launchings of the Thor Delta rocket vehicle to date for the purpose of placing an object into synchronous orbit. The Thor Delta rocket vehicle with such augmenting rockets has not been launched to date in national space programs.

The program of the Corporation contemplates that, in the event the first launch attempt fails or the first satellite is inoperable, an attempt will be made to launch the second satellite into synchronous orbit over the Atlantic Ocean. If the first launch is successful, it will then be determined whether to launch the second satellite into orbit over the Atlantic Ocean (to provide additional or stand-by capacity) or to launch it into orbit over the Pacific Ocean, or to hold it in reserve.

The Corporation is discussing with AT&T the terms of arrangements for the modification of AT&T experimental terminal station facilities at Andover, Maine, and for the use of such facilities in the conduct of tests and operation of such satellites. Such arrangements and use will be subject to the approval of the FCC. It is expected that experimental terminal station facilities now existing or to be constructed in other countries will be used in the conduct of such tests and operations, but arrangements therefor have not yet been made. The Corporation proposes to offer to United States communication common carrier and other authorized users, for hire, channels of communication by means of the satellite in synchronous orbit above the Atlantic Ocean, between such terminal station in the United States and such terminal stations in Western Europe. AT&T has advised the FCC that it intends to seek FCC authorization to lease 100 circuits in the experimental operational satellite as soon as such circuits are commercially available; but the Corporation has not obtained the commitment of AT&T (or of any other carrier or entity) to lease any such circuits.

## System Development

In December, 1963, the Corporation invited 15 United States firms to submit proposals for the preparation of engineering designs of satellites for a commercial system. In response to such invitation, proposals were submitted by (i) AT&T and Radio Corporation of America (RCA), jointly, (ii) Hughes Aircraft, (iii) Philco Corporation, and (iv) Space Technology Laboratories, Inc. (STL) in association with International Telephone and Telegraph Corporation (ITT). The AT&T-RCA proposal and the Philco Corporation proposal are each for the design of satellites for a medium altitude random system. The STL-ITT proposal is for the design of satellites for a medium altitude controlled system. The Hughes Aircraft proposal is for the design of satellites for a synchronous satellite system. The Corporation expects to negotiate and enter into agreements with certain of such firms for the preparation of engineering designs on the basis of the proposals submitted by them. Each such agreement would provide for the completion of the designs within a period of six months from the date thereof. The Corporation may enter into other agreements for the conduct of studies relating to satellite design.

The program of the Corporation for the development of a global commercial satellite system contemplates that (a) in the latter part of 1964, after evaluation of the engineering designs referred to above the Corporation will enter into an agreement or agreements for the development of prototype satellites for systems of one or more types; and (b) in the latter part of 1965, it will be determined whether the commercial system will be a medium altitude random system, a medium altitude controlled system

or a synchronous system. It is expected that the choice of a system type will be made after evaluation of the results of the operation of the synchronous satellite to be launched in 1965, and in the light of other information then available. The construction and technical characteristics of any operational system are subject to the prior approval of the FCC. See "Regulation".

The satellites of the system selected would be designed to provide at least 270 two-way telephone grade circuits initially, which could be used for the simultaneous transmission between two terminal stations of up to that number of telephone conversations or for the transmission of other forms of telecommunications. If development of efficient attitude stabilizing devices is completed in time and such devices are incorporated in the satellites, the design capacity of the satellites may be increased to up to 1200 such circuits.

There is set forth below, with respect to each of the alternative projected systems, information as to the characteristics of the system and the contemplated development schedule for such a system, should it be selected as the commercial system.

Medium Altitude System. A commercial medium altitude system would consist of satellites in orbit at an altitude of approximately 6,000 miles. Such a system might be either (i) a random system of approximately 18 satellites at that altitude, or (ii) a controlled system of a lesser number of satellites at that altitude, with desired spacings between the satellites being achieved through the use of position control equipment included in each satellite. It is expected that such a medium altitude system, when in full operation, would provide channels of communication on a substantially continuous basis between appropriate pairs of suitably equipped terminal stations located in various parts of the world.

Plans for such a system (if selected) contemplate that the first satellites would be launched in mid-1966, and that launchings necessary to complete the system would be carried out within a period of approximately a year from the date of such launchings. It also is contemplated that more than one satellite would be placed in orbit by each launch vehicle. The program of the Corporation for the replacement of satellites of a medium altitude system assumes that the satellites will have operating lifetimes of not less than three years. To date, none of the experimental communications satellites launched in the United States has had an operating lifetime in excess of 16 months, and the "multiple launching" technique has not yet been attempted with communications satellites. See "Satellite Communications". A series of failures in "multiple launching" attempts, or a general failure of satellites to achieve planned operating lifetimes, would have a serious adverse effect on the commercial feasibility of such a system.

Synchronous System. A commercial synchronous system would consist of at least three satellites in synchronous orbit at an altitude of approximately 22,300 miles. Such satellites would be stationed at appropriate points so as to be able to provide channels of communication on a continuous basis between appropriate pairs of suitably equipped terminal stations located in various parts of the world.

Plans for such a system (if selected) contemplate that, in mid-1966, two satellites will be placed in synchronous orbit above the Atlantic Ocean and one satellite will be placed in such an orbit above the Pacific Ocean. A second Pacific Ocean satellite or an Indian Ocean satellite, or both, might be launched in the following year. It is expected that satellites would be launched singly. The program of the Corporation for the replacement of satellites of a synchronous system assumes that the satellites will have operating lifetimes of not less than one year. The satellites of such a synchronous system would be in addition to those referred to under "Experimental Operational Satellites".

Combined Systems. It is envisioned that the initial global system to be established will not combine the use of satellites in synchronous orbit and random orbit. However, since the program of the Cor-

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poration involves placing an experimental operational synchronous satellite in orbit in 1965, it is possible that for a time use could be made of two different types of satellites. It is also possible that a commercial communications satellite system could ultimately consist of a combination of satellites of different types.

Command and Control Facilities. The Corporation plans to arrange for the design, construction and equipping of a command and control center for the system, to be located in the continental United States. The center would include computers, and would include or be linked to equipment for the tracking, guidance, control and command of the satellites constituting the system. It is expected that the construction and equipping of such center will be completed by mid-1966, to provide for the type of system theretofore selected.

Launching Services. The Corporation expects to enter into agreements with NASA providing for the purchase from NASA of the launching and associated services necessary to establish and maintain the system. The Corporation has held preliminary discussions with NASA with respect to the launching schedule contemplated by the program of the Corporation, the types of launch vehicles proposed to be used, and related matters, but the terms and provisions of such agreements have not been negotiated.

The Corporation expects that launch vehicles of types developed (or under development) in connection with the national space programs will be used in the launchings of satellites of the commercial communications satellite system. Several launch vehicle types are believed to be suitable for such use. The Corporation has not yet determined the type of vehicle which would be used to launch the satellites of a medium altitude system or the satellites of a synchronous system. It is expected that such determination will be made at the time it is decided whether the system is to be a synchronous system, or a medium altitude random system or a medium altitude controlled system.

#### Proposed Terminal Stations

The program of the Corporation contemplates that (i) if the commercial communications satellite system is a medium altitude system, there would initially be three terminal stations in the continental United States (northeast, northwest and southeast quarters) and a terminal station in the State of Hawaii, and (ii) if the commercial system is a synchronous system, there would initially be two terminal stations in the continental United States (eastern half and western half) and a terminal station in the State of Hawaii. Under the provisions of the Act, a license to own and operate any of such terminal stations may be granted by the FCC only to the Corporation or to one or more communications common carriers, or to the Corporation and one or more such carriers jointly. The number and location of terminal stations in the United States actually licensed by the FCC may differ from the number and location of the stations contemplated by the program of the Corporation. As of the date of this Prospectus, neither the Corporation nor any carrier has filed with the FCC an application for such a license. AT&T and ITT each have constructed and own experimental terminal station facilities in the United States. Pursuant to authorizations by the FCC under the Communications Act of 1934, such stations have engaged in various telecommunications experiments.

AT&T and certain other carriers engaged in international telecommunications have stated, expressly or in substance, an intention to apply to the FCC at the appropriate time for authorization to own and operate, or to participate in the ownership and operation of, one or more United States terminal stations. The Corporation intends to apply to the FCC at the appropriate time for authorization to own and operate

each terminal station in the United States (including the State of Hawaii) or to carry out arrangements with carriers which would give the Corporation operating control over United States terminal stations to be owned by such carriers. The Corporation has not negotiated any such arrangement with AT&T or any other carrier. It is possible that the ownership and operation of terminal stations in the United States will be the subject of contested proceedings before the FCC among the Corporation and one or more communications common carriers.

The construction and operation of suitably equipped terminal stations in foreign countries are essential to the operations of the commercial communications satellite system. It is presently expected that terminal stations in foreign countries will be constructed, owned and operated by telecommunications entities or authorities other than the Corporation.

In the event that the proposed program referred to under "National Communications System Program" is undertaken, terminal station facilities required for the use of the Government in connection with such program would be owned by the United States Government. See "National Communications System Program".

#### National Communications System Program

By Executive Order of the President there was established in August, 1963 the National Communications System, which is responsible for the administration of all communications facilities serving the Government of the United States, including the Department of State, the Department of Defense, the General Services Administration, the Federal Aviation Agency, and all other governmental departments and agencies. Under this Executive Order, the Secretary of Defense is the Executive Agent for the President.

For some time there have been discussions, which are continuing, between the office of the Secretary of Defense and the Corporation with a view to ascertaining whether a feasible program can be developed under which the National Communications System would be provided with satellite communications capability adapted to its needs, consistently with the development and establishment of a commercial communications satellite system.

As stated above under "System Development", the program of the Corporation contemplates active research and development on both synchronous and medium altitude communications satellite systems, with the ultimate decision to be made in 1965 as to whether the commercial system will be a medium altitude random system, a medium altitude controlled system, or a synchronous system. The office of the Secretary of Defense has advised the Corporation that, in order to minimize the risks of "jamming", and for other reasons, a medium altitude random system is needed. Accordingly, the discussions which have been had with the office of the Secretary of Defense have sought, on the one hand, to explore the possibilities of satisfying the requirements of the National Communications System if such a medium altitude system is selected, and on the other hand to spell out arrangements whereby the products of work done on a medium altitude random system could be utilized for the benefit of the Government on terms satisfactory to the Corporation and the Government in the event that another type of system is selected for the commercial satellite system.

If agreement should be reached with the Government under which, in the event of selection of a medium altitude random system as the commercial system, the National Communications System would be provided with capability to satisfy certain of its requirements, the range of estimated costs for the manufacture and placing in orbit of satellites constituting the system would be substantially greater than

the \$75,000,000-\$90,000,000 range of such estimated costs in the case of a purely commercial system, as shown under "Summary of Program and Estimated Costs", and the time required for the complete establishment of the system would probably be somewhat increased. However, the parties are continuing to explore in their discussions whether, as the result of such a program, the portion of the total cost properly allocable to the establishment and maintenance of the commercial system would be reduced, with a resulting advantage to the Corporation and such others as may participate in the ownership of the commercial system, and with a similar reduction in cost to the Government. It is also contemplated that if agreement were reached with the Government under which the National Communications System were provided with a portion of the capability of a medium altitude random system, charges would be made to the Government which would be such as to provide a reasonable return on the portion of the total cost of the system properly allocable to such capability. Such charges may be subject to regulation by the FCC.

Many technical and administrative problems would be involved in carrying out a program such as that outlined above, and many aspects of it are subject to the approval of the FCC, as well as other participants. Furthermore, the nature of such international arrangements as are made with the telecommunications entities in other countries, discussed below under "International Arrangements for System", may affect the feasibility of any such program or the manner in which it would be carried out. Although the Corporation believes that, if the proposed program could be carried out, it would offer advantages to both the Corporation and the Government, there is substantial question whether the problems inherent in the program can be resolved and as to the extent to which modifications in the program would affect the costs thereof or the time or manner in which it would be carried out.

## Research and Development

The Corporation proposes to engage in communications satellite research and development activities as a part of the program for the establishment and operation of a commercial system. Certain of such research and development activities will be related to matters affecting the design of satellites which would be launched to establish the commercial satellite system. Other such activities will be directed toward matters affecting the design of satellites which would be launched after the system is in being, either as replacements for inoperative satellites of the system or for the purpose of increasing the capability of the system.

#### INTERNATIONAL ARRANGEMENTS FOR SYSTEM

In accordance with the policies of the United States Government, which favor the development of a single global system, telecommunications entities in other countries have been and will be given the opportunity of participating with the Corporation in the establishment of the space segment (comprising the satellites and the command and control facilities) of the commercial communications satellite system. Officers of the Corporation and representatives of the United States Government have met with representatives of other governments and other telecommunications entities for the purpose of discussing international arrangements for such participation. In these discussions, the Corporation and the United States Government have proposed that the telecommunications entities in other countries might share with the Corporation the costs of establishing the space segment, which would be jointly owned by the Corporation and such entities in proportion to their respective investments. According to this proposal, each participant's share of the total investment in the space segment would be based upon its share of world telecommunications traffic which is suitable for transmission by a communications satellite system and upon the participant's anticipated use of the system. On this basis, the Corporation's share would exceed the shares of all other participants combined.

Under the proposal a committee representing the joint owners would be established, to which would be delegated the responsibility and authority for certain major decisions relating to the design, establishment and operation of the space segment. Thus, in the event that the proposed arrangements become effective, such decisions would not be made by the Corporation alone, but would require the concurrence of some of the other participants. However, the other participants would not have the power to make such decisions without the concurrence of the Corporation.

The proposal contemplates that the Corporation would act as manager on behalf of the joint owners in the designing, establishing and operating of the space segment and would be compensated for such services. It also contemplates that each of the investing participants would be allocated an equitable portion of the space segment capacity and that the Corporation would utilize its allocation to furnish satellite channels for hire to the United States communications common carriers and other authorized users. It is expected that the charges made to United States carriers for use of such channels would be a principal source of the Corporation's revenue.

The Corporation and the United States Government have proposed that appropriate interim arrangenents covering the establishment and operation of the proposed system in its early stages be negotiated as soon as possible among prospective participants who are prepared to make immediate commitments for substantial investments of capital in the space segment, with provision for new investors to become participants at a later date. Certain of these arrangements would be among governments and other arrangements would be among the participating communications entities. Preliminary discussions are taking place in London with representatives of the governments and telecommunications entities of a number of countries, including Western European nations, Canada, Japan and Australia with respect to the proposed interim arrangements. It is expected that such discussions will be followed by negotiations with the governments and telecommunications entities of the above-mentioned countries during the middle and latter part of June. The outcome of such discussions and negotiations, and the terms of the interim arrangements which may result from them, cannot be predicted. In order to insure the development of a communications satellite system as promptly as possible, the Corporation intends proceed with its program while discussions and negotiations with other governments and other elecommunications entities are pending, and it is prepared if necessary to finance the entire cost of establishing the system (exclusive of the costs of foreign terminal stations). Early in 1963 the United States Government suggested to the Government of the U.S.S.R. that it might be useful to have discussions relative to the establishment of a single global commercial communications satellite system. Recently that Government indicated that it would be prepared to hold such discussions, and the United States Government responded with the suggestion that a meeting for that purpose, in which the Corporation would participate, be held in June of this year.

The international allocation of frequency bands for space radio-communication services is a prerequisite to the conduct of the operations of a commercial communications satellite system. Important
steps in this area were taken at the Extraordinary Administrative Radio Conference on Space Communications, held in Geneva, Switzerland, in October and early November, 1963. The Conference, which
was held under the auspices of the International Telecommunication Union (ITU), a specialized agency
of the United Nations, allocated for communications satellite services (a) two 50 megacycle bands of
frequency space, on an exclusive basis, and (b) 2500 to 2700 megacycles of frequency space, on a shared
basis with existing radio services. A number of ITU members (including certain countries in Western
Europe) have stated that, in their countries, certain existing radio services would continue to use either
or both of the two 50 megacycle bands allocated by the Conference to communications satellite services

# INTERNATIONAL TELECOMMUNICATIONS

Facilities for International Telecommunications

Telecommunications service between the United States and overseas points is provided by United States communications common carriers (U. S. carriers), in most instances in collaboration with telecommunications entities in foreign countries. The U. S. carriers are subject to regulation by the FCC under the Communications Act of 1934, and other provisions of law, with respect to the construction and operation of facilities for such service and the rates charged therefor. The collaborating telecommunications entities in foreign countries are either government-owned or privately owned, but subject to regulation or control by the governments of such countries. International service between points outside the United States is provided by agencies of foreign governments, by other foreign telecommunications entities and by U. S. carriers.

International telecommunications service is provided primarily by means of submarine telephone cables, high-frequency radio facilities and submarine telegraph cables, and, in respect of service between contiguous countries, also by terrestrial (overland) facilities.

Submarine Telephone Cables. Submarine telephone cables carry all forms of record traffic, as well as telephone traffic. Existing telephone cables, and those planned to be in service by December 31, 1965, are not designed to transmit high-quality television signals. The first oceanic telephone cable (Florida-Cuba) began service in 1950 and the first trans-Atlantic telephone cable was placed in operation in 1956. Other important submarine telephone cable systems have been placed in operation at various times since 1956. Further advances in cable and related technology have greatly increased the initial capacity of telephone cables most recently placed in service. In addition, significant increases have been made in the capacity of earlier telephone cables, primarily by the installation of additional cable terminal equipment ("TASI equipment"), which automatically utilizes capacity resulting from intervals in one conversation for the transmission of another conversation. AT&T and others are carrying out programs to place additional telephone cable systems in operation at various future dates.

The following table sets forth information with respect to the principal submarine telephone cable systems in operation at December 31, 1960, and December 31, 1963, or scheduled to be in operation at December 31, 1965, other than those within Europe or between Europe and North Africa:

	Grad	Number of Two-way Telephone Grade Circuits in Service at December 31		
Cable System(a)	1960(b)	1963(b)	1965 (Est.) (b)	
North Atlantic	over Area and the party of the	192 Mar and Mar		
U.S. or Canada—U.K. or France Primarily for U.S. traffic Other systems	170 	298 104(d)	426(c) 104(d)	
Western Hemisphere(e) U.S.—Alaska U.S.—Puerto Rico		48 85	48	
U.S.—Puerto Rico		80	85 80	

Number of Two-way Telephone
Grade Circuits in Service
at December 31

Cable System(a)	1960(b)	1963(b)	1965 (Est.) (b)
U.S.—Jamaica	Steman, 1910	128	128
Jamaica—Canal Zone	er francisco	128	128
Canal Zone—Colombia	ur nogestino	319 6 (2)110	80
U.S.—Virgin Islands	-745	_	128
Virgin Islands—Venezuela	1194	11 0	80
Pacific Area			
U.S.—Hawaii	48	85	213
Canada—Hawaii	73.6	80	80
Hawaii—Guam—Japan	E HOLLTOIELD	Summit of 13	128
Guam—Philippines	xtens <del>ive</del> ser	ties <del>be</del> gan e	128
Hawaii—New Zealand	-00-	80	80
Australia—New Zealand	7	80	80
Australia—Malaysia—Hong Kong	T HO DELLIES	HILLES WER	80
(2) As used in the table TIS refere to soint within the 40 11	C C.1	TT . 1 C	1 77 77

(a) As used in the table, U.S. refers to points within the 48 contiguous States of the United States and U.K. refers to the United Kingdom.

(b) Numbers of circuits in service at December 31, 1960 and December 31, 1963 include circuits provided by TASI equipment installed at said dates. Estimates of circuits to be in service at December 31, 1965, are based on assumptions that (i) systems planned for completion by that date will be so completed and will then provide planned capacity, and (ii) systems in operation at December 31, 1963, will be in operation at December 31, 1965, and will then provide the same capacity as provided at December 31, 1963. The design capacity of cable systems planned to be constructed before December 31, 1965, and the capacity of certain of the cable systems in service at December 31, 1963 (including certain of the North Atlantic systems) could be increased substantially for traffic of certain types (including message telephone service) by the installation of TASI equipment. The FCC, which heretofore has not required that its authorization be obtained for installation of TASI equipment, recently has stated that such authorization should be required of U.S. carriers for future installation of such equipment.

(c) Includes the initial planned capacity (128 two-way telephone grade circuits) of a cable between New Jersey and France, the construction of which by mid-1965 the FCC, on March 17, 1964, determined to be required by the public interest, convenience and necessity. Such determination was made in proceedings upon applications of AT&T for authority to construct such a cable over that route, and of Mackay Radio and Telegraph Company (Mackay), an affiliate of ITT, for authority to construct a trans-Atlantic cable over a different route. AT&T's application estimated that its share of the costs of the cable proposed by it (in which AT&T would have an ownership interest of approximately 65%) would be \$34,347,000. The FCC's determination provided that the new cable should be authorized in the name of all the United States overseas telecommunication entities (both record and telephone) which desire to participate in such ownership. Pursuant to such determination, upon applications by the entities hereinafter referred to, the FCC on May 6, 1964, authorized AT&T, Mackay, Press Wireless, Inc., RCA Communications, Inc. and Western Union International, Inc. to construct and operate such cable.

(d) Includes the capacity (24 two-way telephone grade circuits) provided by cable systems extending from Canada to Iceland and from Iceland to the United Kingdom, used exclusively by the international airlines of North Atlantic countries to provide communication services necessary for the conduct of their operations.

(e) In addition to the Western Hemisphere cable systems shown above, the Corporation is advised that ITT and AT&T propose, subject to the obtaining of various requisite governmental approvals, jointly to construct and operate a cable, with a design capacity of 160 two-way telephone grade circuits, from the Canal Zone down the west coast of South America to Chile, which it is contemplated would be completed by the end of 1965. See "Competition".

Of the cable systems included in the foregoing table, AT&T owns, or has ownership interests in (or, in respect of systems to be constructed before December 31, 1965, is expected to own or have ownership interests in), (i) all the North Atlantic cable systems reflected in the numbers of circuits shown opposite "Primarily for U. S. Traffic", (ii) each of the cable systems referred to under the

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AT&T and others are engaged in the development of improved submarine telephone cables. See "Competition".

High-Frequency Radio Facilities. High-frequency radio (HFR) facilities serve telephone and record traffic on routes served by telephone cables and, in addition, provide the only telephone and record service to the many areas of the world which do not have cable connections. Communication by HFR circuits is subject to fading, distortion and blackout because of disturbances in the ionosphere.

HFR facilities began extensive service for international record traffic shortly before World War I, and for international telephone traffic in 1927. All international telephone traffic (except that carried by overland facilities) was carried on HFR circuits until the introduction of submarine telephone cables in 1956. Submarine telephone cables now carry a far greater part of international telephone traffic than is carried by HFR facilities between places having both telephone cable and HFR service. On routes which have submarine telephone cable service, HFR facilities are operated primarily on a standby basis.

In addition, communications circuits for all forms of telecommunication are provided by tropospheric scatter radio systems and ionospheric scatter radio systems. Tropospheric scatter systems are used for communication over relatively short distances (i.e., 300 miles or less). Ionospheric scatter systems are also used for communication over longer routes. The capacity of scatter systems in comparison with the capacity of submarine telephone cables is not significant.

Submarine Telegraph Cables. Service provided by submarine telegraph cables is limited to message telegraph and other telegraph transmissions. The capacity of such cables in comparison with the capacity of submarine telephone cables is not significant. Beginning in 1960, U. S. carriers which operate submarine telegraph cables have leased circuits in submarine telephone cables for transmission of telegraph and other forms of record traffic, and since that time an increasing proportion of the record traffic between the United States and overseas points has been transmitted through such leased circuits. With the approval of the FCC, certain U. S. carriers recently have abandoned submarine telegraph cables (including trans-Atlantic telegraph cables) theretofore operated by them.

#### Traffic and Revenues

Telephone traffic and record traffic between the United States and overseas places constitute an important part of all telephone and record traffic between different continents or areas of the world. It is estimated that, in 1963, overseas telephone messages originating or terminating in the continental United States represented approximately 70% of the total number of intercontinental telephone messages, and that approximately one-half the revenues from overseas telephone messages originating or terminating in the United States were received by U. S. carriers.

Telephone and record traffic between the United States and overseas places has increased continuously since the end of World War II. In respect of record traffic, the most rapid growth has been in forms of service other than message telegraph service, principally teleprinter exchanges service (telex) and leased circuit services. The following table sets forth information, for each of the years indicated, with respect to telephone traffic between the continental United States and places outside

the continental United States (except Canada and Mexico). The table shows, in respect of such routes, the total number of chargeable telephone calls transmitted by the principal U. S. telephone carriers, and the gross revenues of the U. S. telephone carriers from such calls:

		Chargeable Calls (Thousands)	from Chargeable Calls (Thousands of \$)*
1947	7	517	\$ 5,833
1950	0	745	8,198
1955	5	1,194	13,001
1956	5	1,394	15,802
1957	7	2,178	22,679
1958	8	2,427	27,841
1959	9	2,736	33,110
1960	0	3,301	42,322
196:		3,945	50,906
1962		4,461	61,387
1963	3 (est.)	4,825	69,410

\*Exclusive of any revenues (approximately \$12,700,000 in 1962) derived by U. S. telephone carriers from leases of circuits, principally to U. S. telegraph carriers and to agencies of the United States Government. Information in the table (except estimates for 1963) is from statistical publications of the FCC for the years indicated.

The revenues of the U. S. carriers shown in the table reflect (1) charges for the domestic segment of the telephone calls (including terminal handling), as well as charges for the overseas segment of the calls, and (2) rates established for a "retail" communications service, rendered directly to the public. In contrast, any revenue which the Corporation would receive from leases of satellite system channels would relate only to the overseas segment of the service, and would reflect rates to be established for a "wholesale" service rendered to the carriers and not directly to the public. Accordingly, any revenues of the Corporation under leases of satellite system channels to U. S. carriers would be less than the revenues which the U. S. carriers would receive from their customers for providing overseas telephone service through such satellite system channels. The revenues shown in the table include revenues of U. S. carriers from calls over certain routes (e.g., between the U. S. and places in the Caribbean) which would not necessarily be served by satellite system channels in the early years of a commercial satellite system.

Of the gross revenues of the U. S. telephone carriers from overseas chargeable calls in 1962, as shown in the foregoing table, \$22,668,000 (37%) relate to chargeable calls classified as "Trans-Atlantic and Bermuda", \$21,927,000 (36%) relate to chargeable calls classified as "Central America, South America and Caribbean" and \$16,792,000 (27%) relate to chargeable calls classified as "Trans-Pacific".

The aggregate amount paid by U. S. telegraph carriers for the rental of circuits in submarine telephone cables from U. S. telephone carriers and others is estimated at approximately \$4,662,000 for 1963. The gross revenues of the U. S. telegraph carriers from record traffic service between the United States and overseas places are a much larger amount, reflecting not only such leased circuit costs but charges in respect of the HFR or telegraph cable facilities operated by them for traffic not transmitted through such leased circuits, charges attributable to transmission services in the United States from points of origin to gateways for overseas transmission, and charges in respect of non-transmission services.

The demand for telecommunications service between Western Europe and North America, and on certain other overseas routes, exceeded the capacity of available facilities during peak demand hours in 1963.

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# Future International Telecommunications Traffic

The rate of growth in the demand for international telecommunications service is influenced by many factors, including population growth, the extent of international trade and travel, the extent of improvements in domestic telecommunications systems and rates for international telecommunications service. Estimates with respect to the demand for international telecommunications service at various times through 1980 have been published in recent years by U. S. carriers, by representatives of such carriers and by international bodies and other persons. Such estimates, which are not necessarily based on the same information with respect to relevant matters or on the same assumptions with respect to factors which may affect the demand for international telecommunications service, differ substantially from each other in certain respects. All such estimates of which the officers of the Corporation have knowledge, however, reflect the view that, during the periods to which such estimates, respectively, relate, there will be a continuous growth in the demand for telephone and record traffic service between the continental United States or North America and other areas of the world, and that the demand for telephone and record traffic service between the continental United States and Western Europe will exceed the capacity of telephone cables now in existence or now scheduled for construction through 1965 within a period of not more than a year thereafter. Estimates of future demand for international telecommunications service necessarily are based on assumptions and predictions with respect to factors which may affect the growth of such demand, and the accuracy of such estimates may depend upon the substantial correctness of the assumptions and predictions on which the estimates are based.

Although the need for a commercial communications satellite system derives primarily from the anticipated growth in demand for international telecommunications services and the relationship of such demand to the capacity of present and proposed submarine telephone cables, it is possible that, once such a system has been established, it may be used to provide service between intracontinental points separated by long distances. The Corporation is unable to predict the extent of such intracontinental use of the proposed system.

Submarine cable systems (and/or other telecommunications facilities), in addition to those now planned, may be constructed and placed in operation at or before the time the commercial communications satellite system is established, to meet the anticipated increase in demand for international telecommunications service. See "Competition".

## COMPETITION

The U. S. carriers and telecommunications entities in other countries to which satellite system channels will be offered own and operate the submarine telephone cable systems and HFR facilities with which the satellite system will compete. In respect of telephone and record traffic between the continental United States and overseas points, the facilities of the satellite system will compete principally with those of AT&T and the U. S. telegraph carriers.

The amount of the revenues from the operations of the satellite system will depend in the first instance on the ability of the system to provide communication channels of commercial quality. The amount of such revenues will also be affected by the extent of the growth of international telecommunications traffic and the extent of the construction of submarine telephone cable systems or other telecommunications facilities. The competitive position of the Corporation will depend on its ability to develop and operate a satellite system which compares favorably, in cost and efficiency, with service provided by cable systems or other telecommunications facilities.

AT&T and others are engaged in the development of improved submarine telephone cables. The cables under development by AT&T include cables in which transistors would be used for the first time in certain submerged components of the cable. A 3,000-mile cable in which transistors are so utilized would have a design capacity of up to 720 two-way telephone grade circuits and could provide service, between the places connected by such cables, for all the forms of telecommunications traffic which the satellite system might serve. None of the trans-oceanic cables shown in the table under "International Telecommunications—Facilities for International Telecommunications" as scheduled to be in operation by December 31, 1965, will be a transistorized cable. The design capacity of the trans-Atlantic telephone cable recently authorized by the FCC to be constructed in 1965 is 128 two-way telephone grade circuits.

Under the Communications Act of 1934, and other provisions of law, the construction and operation of a submarine telephone cable between the United States and an overseas point may not be undertaken unless the FCC has determined that the present or future public convenience and necessity require or will require the construction and operation of the cable.

In December, 1963, AT&T advised the Corporation, among other things, to the effect that (a) AT&T sees a place and a need for both satellite and cable communications, in order to provide for anticipated increases in the volume of trans-oceanic communications and to provide diversity in means of communication, (b) if satellite system circuits of satisfactory quality and costs reasonably related to the costs of providing communication circuits by alternative means are available in late 1966 or early 1967 on North Atlantic routes, AT&T would prefer, in order to provide diversity of facilities in meeting additional needs, to use satellite circuits instead of placing additional cables in service on such routes, subject to the giving to AT&T during 1964 of assurances that suitable satellite circuits would be available in 1966 or early 1967, the obtaining of the agreement of the interested European telecommunications entities (which AT&T would take all reasonable steps to help obtain), and the obtaining of necessary authorizations from the FCC, and (c) it appears to AT&T that such preference for satellite circuits would continue until North Atlantic routes were served by approximately equal numbers of cable system voice circuits and satellite system voice circuits. Regardless of the type of system selected, the present program for system development contemplates the emplacement by early 1967 of at least a number of satellites providing North Atlantic circuits satisfactory in quality and having costs bearing a reasonable relationship to alternative methods, which would be sufficient to provide an average grade of service (percentage of total number of customer calls for which circuits are available immediately) equivalent to that obtained by means of North Atlantic cable circuits at the present time. See "System Development".

The Corporation is informed that ITT (subsidiaries of which operate telecommunications systems in various South and Central American countries) and AT&T have recently transmitted letters to the Department of State stating that they desire to construct by the end of 1965, and participate in the ownership and operation of, a submarine telephone cable which would extend from the Canal Zone down the west coast of South America to Chile. This cable, which would have a design capacity of 160 two-way telephone grade circuits, would constitute a continuation of a submarine telephone cable recently put in operation between the United States and the Canal Zone via Jamaica. The Corporation is informed that this cable may subsequently be connected with facilities, to be constructed, which would provide a continuation of similar telecommunications service across the Andes to Argentina and, by submarine cable, along the east coast of South America, to Brazil. In their letters to the Department of State, ITT and AT&T expressed the view that both cable and satellite facilities are needed. In its letter ITT also stated that it had initiated discussions with the governments of various South American countries looking toward the granting of franchises for both cable facilities and satellite terminal stations. The Corporation is

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unable to state the extent to which the cable program described above, if the requisite approvals of governmental authorities in the United States and other countries are obtained and the cable system is constructed, might adversely affect the establishment of or the revenues from satellite communications services between the United States and South American countries or between South American countries.

In respect of telecommunications traffic between places outside the United States, the facilities of the satellite system will compete principally with facilities of foreign telecommunications entities, which may include facilities not now scheduled to be constructed.

## REGULATION

The Corporation is subject to regulation by the FCC under the provisions of the Act and, as a communications common carrier, under certain provisions of the Communications Act of 1934. The matters as to which the FCC has regulatory authority include, among other things, (a) the procurement by the Corporation of equipment and services required for the establishment and operation of the satellite system and terminal stations, (b) the use by communications common carriers of the facilities of the satellite system and terminal stations, including the charges to be made therefor, (c) the making of additions with respect to the facilities of the satellite system or terminal stations, including authority to insure that no substantial additions are made by the Corporation or carriers with respect to facilities of the satellite system or terminal stations unless such additions are required by the public interest, convenience, and necessity, and authority to require the establishment of service to particular foreign points upon advice of the Secretary of State of the United States that such service should be established in the national interest, (d) the technical characteristics of the satellite system and terminal stations, including the technical compatibility and operational interconnection of the system and terminal stations with each other and with existing communications facilities, (e) accounting systems, and (f) the issuance of securities (other than the issuance of the shares of Common Stock to which this Prospectus relates) and the borrowing of funds. Under the provisions of such Act or Acts, in respect of rates charged by the Corporation for service to communications common carriers and other authorized users, the FCC may limit the Corporation to a reasonable rate of return, and the FCC is also directed by the Act to engage in such rate-making procedures as will insure that any economies made possible by a communications satellite system are appropriately reflected in rates for public communications services. The Act also provides that the FCC shall authorize the construction and operation of each satellite terminal station by the Corporation or one or more communications common carriers authorized to provide services by means of communications satellites, or by the Corporation and one or more such carriers jointly, without preference to either the Corporation or such carriers, as will best serve the public interest, convenience and necessity.

Under the provisions of the Act, the Corporation is required to meet certain responsibilities to representatives or agencies of the United States Government other than the FCC. The Act provides that (a) the President of the United States shall exercise such supervision over the relationships of the Corporation with foreign governments, foreign entities and international bodies as may be appropriate to assure that such relationships are consistent with the national interest and foreign policy of the United States, and that the President shall exercise various other powers relating to the establishment and operation of a commercial communications satellite system; (b) the Corporation shall notify the Department of State whenever it enters into business negotiations with a foreign or international entity relating to the Corporation's facilities, operations or services, shall receive the advice of that Department with respect to relevant foreign policy considerations and, throughout

such negotiations, shall keep the Department informed with respect to such considerations; (c) NASA shall, among other things, consult with the Corporation with respect to the technical characteristics of the satellite system; cooperate, to the extent deemed appropriate by it, in the Corporation's research and development program; and provide, on a reimbursable basis, satellite launching and associated services deemed necessary by NASA in connection with the research and development program of the Corporation or required for the establishment, operation and maintenance of the communications satellite system; (d) the Corporation shall transmit to the President of the United States and to the United States Congress, detailed reports of its operations, activities and accomplishments under the Act; and (e) the Attorney General of the United States may institute appropriate court proceedings to prevent or terminate actions by the Corporation which are inconsistent with the policies and purposes declared in the Act or which involve or threaten a refusal or failure by the Corporation to comply with the provisions of the Act.

Under the provisions of the NASA Authorization Act for the 1964 fiscal year, the Corporation is required to reimburse NASA for any scientific or technological services furnished at the request of the Corporation for its exclusive benefit.

Communication via the satellite system with a telecommunications entity in any other country may also be subject to regulation or control by the government of such country.

#### MANAGEMENT

#### Director

In accordance with the provisions of the Act, the present Board of Directors of the Corporation consists of persons appointed by the President of the United States, with the advice and consent of the United States Senate, as incorporators of the Corporation. The name and principal occupation of each such person are as follows:

person are as follows:	
Name	Principal Occupation
Joseph V. Charyk	President of the Corporation, Washington, D. C.
John T. Connor	President, Merck & Co., Rahway, New Jersey
George J. Feldman	Vice President and Counsel, Mastan Co., New York, N. Y.
Beardsley Graham	President, Spindletop Research, Inc., Lexington, Kentucky
Sam Harris	Attorney, New York, N. Y.
Edgar F. Kaiser	President, Kaiser Industries Corporation, Oakland, California*
David M. Kennedy	Chairman, Continental Illinois National Bank and Trust Company of Chicago, Chicago, Illinois*
George Killion	President, American President Lines, San Francisco, California
Byrne Litschgi	Attorney, Tampa, Florida
Leonard H. Marks	Attorney, Washington, D. C.
Bruce G. Sundlun	Attorney, Washington, D. C.
Sidney J. Weinberg	Partner, Goldman, Sachs & Co., New York, N. Y.
Leo D. Welch	Chairman and Chief Executive Officer of the Corporation, Washington, D. C.*
Leonard Woodcock	Vice President, UAW-CIO, Detroit, Michigan

\* Continental Illinois National Bank and Trust Company of Chicago, of which Mr. Kennedy is a director and Chairman of the Board, Bank of America National Trust and Savings Association, of which Mr. Kaiser is a director, and First National City Bank, of which Mr. Welch is a director, are among the banks which are parties to the Corporation's bank credit agreement. See "Notes to Financial Statements".

The present Board of Directors will serve until the first annual meeting of shareholders following completion of the offering made by this Prospectus. It is expected that such shareholders meeting will be held on or about September 1, 1964. As provided in the Act and the Articles of Incorporation of the Corporation, the Board of Directors thereafter will consist of 15 individuals, of whom (a) three will be appointed by the President of the United States, by and with the advice and consent of the Senate, for terms of three years (except that the first three directors so appointed will continue in office for terms of one, two and three years, respectively), (b) six will be elected annually by those holders of Common Stock which are communications common carriers (holders of Series II shares), and (c) six will be elected annually by holders of Common Stock who are not communications common carriers or persons having specified relationships to any such carrier (holders of Series I shares). See "Description of Common Stock—Voting Rights", below. The Articles of Incorporation provide that each director, regardless of the method of his appointment or election, shall have the same fiduciary duty to the Corporation and its shareholders.

Under the provisions of the By-laws of the Corporation presently in effect, no vote may be counted for the election of any person as a director unless (a) such person was proposed for nomination to be a candidate by written notice signed by a shareholder of the appropriate Series and mailed to the Secretary of the Corporation not less than 10 nor more than 50 days before the date of the meeting, (b) such person has filed with the Secretary of the Corporation a statement of his interests in any communications common carrier, and (c) a statement of the interests of such person in any communications common carrier shall have been included in each written solicitation of proxies in favor of his election, made by such person or by his proposer.

It is the intention of the present Board of Directors, as holders of Series I shares, to nominate six candidates for election as directors by holders of Series I shares (public shareholders) at the first annual meeting of shareholders, and to solicit proxies for the election of such candidates. Such candidates may include members of the present Board of Directors. The identity of such candidates has not been determined.

#### Officers and Staff Division Heads

The names of the executive officers and heads of the principal staff divisions of the Corporation are as follows:

Name Name Name Name	Office or Position
Leo D. Welch	Chairman and Chief Executive Officer*
Joseph V. Charyk	President* noili2 931
Allen E. Throop	Vice President and General Counsel*
Siegfried H. Reiger	Vice President (Technical)*
Lewis C. Meyer**	Treasurer*
Frederic M. Mead	Comptroller*
David J. Melamed	Secretary*
John A. Johnson	Director of International Arrangements
Sidney Metzger	Manager, Engineering Division
Matthew Gordon	Director of Information

\* Executive officer elected by the Board of Directors.

\*\* Mr. Meyer is also Finance Coordinator of the Corporation.

Mr. Welch has served as Chairman and Chief Executive Officer of the Corporation since March 31, 1963. From 1944 to that date, he served in various capacities with Standard Oil Company (New Jersey), including service as a vice president (September 6, 1956 to April 2, 1958), executive vice president and member of the executive committee (April 3, 1958 to April 30, 1960) and chairman of the board and vice chairman of the executive committee (May 1, 1960 to March 31, 1963).

Dr. Charyk has served as President of the Corporation since February 28, 1963. From January 1959 to that date, he served in various civilian capacities with the United States Department of the Air Force, including service as Chief Scientist of the Air Force (January, 1959 to June, 1959), Assistant Secretary of the Air Force for Research and Development (June, 1959 to January, 1960), and Under Secretary of the Air Force (January, 1960 to February, 1963). Before such service with the Department of the Air Force, Dr. Charyk was General Manager of the Space Technology Division of Aeronutronic Systems, Inc. (a subsidiary of the Ford Motor Company) and was a director of the Aerophysics and Chemistry Laboratory of Lockheed Aircraft Corporation.

Mr. Throop has served as Vice President and General Counsel of the Corporation since May 31, 1963. From 1945 to that date he was a member of the law firm of Messrs. Shearman & Sterling, New York, N. Y.

Mr. Reiger was elected Vice President (Technical) of the Corporation, effective May 15, 1964. From June 3, 1963 to that date he served as the Corporation's Manager for Systems Analysis. From January, 1959 to June 3, 1963, he served as a Senior Staff Member of The Rand Corporation, Santa Monica, California.

Mr. Meyer has served as Finance Coordinator of the Corporation since June 2, 1963, and as Treasurer and Finance Coordinator since April 10, 1964. From July, 1958 until his employment by the Corporation, he served in various civilian capacities with the United States Department of the Air Force, including service as Chief, Missile and Space Systems Division, Office of the Comptroller of the Air Force (July, 1958 to August 1962), and as Deputy for Financial Analysis, Office of the Assistant Secretary of the Air Force (Financial Management) (August, 1962 to June 2, 1963).

Mr. Mead was elected Comptroller of the Corporation, effective May 1, 1964. From March 1, 1958 to April 30, 1964, he served in various capacities with Mallinckrodt Chemical Works, St. Louis, Missouri, including service as Controller (April 4, 1961 to April 30, 1964).

Mr. Melamed served as Assistant Counsel to the Chairman of the Incorporators of the Corporation from November 6, 1962 to January 31, 1963, as Assistant Secretary of the Corporation from February 1, 1963 to September 15, 1963, and has served as Secretary of the Corporation since that time. From August 11, 1956 to November 5, 1962, he was an associate with the law firm of Messrs. Cravath, Swaine & Moore, New York, N. Y.

Mr. Johnson has served as Director of International Arrangements since December 9, 1963. From October, 1958 to that date, he served as General Counsel of the National Aeronautics and Space Administration.

Mr. Metzger has served as Manager, Engineering Division, since June 6, 1963. From 1954 to that date, he served in various capacities with Radio Corporation of America (RCA), including service as Manager, Communications Engineering, of the Astro-Electronics Division of RCA and Manager of RCA's New York Communications System Laboratory.

#### Remuneration

The following table sets forth the aggregate direct remuneration for services in all capacities estimated to be payable by the Corporation in 1964 (a) to each director, and each of the three highest-paid officers, of the Corporation whose aggregate direct remuneration in such year is estimated will exceed \$30,000, and (b) to all directors and officers of the Corporation as a group:

Name of Individual or Identity of Group	Capacities In Which Remuneration Was Received	Aggregate Direct Remuneration*
Leo D. Welch	Chairman and Chief Executive Officer	\$125,000
Joseph V. Charyk	President	80,000
Allen E. Throop	Vice President and General Counsel	50,000
All directors and officers as a group (including those named above)		404,000

\*It is estimated that the following additional amounts will be payable by the Corporation in 1964 as life insurance premiums in respect of the officers named under policies other than the Corporation's contributory group insurance policy: Mr. Welch, \$4,481; Dr. Charyk, \$714; Mr. Throop, \$1,183.

The Corporation does not have an employment contract with any of its officers or employees, or any plan or arrangement for the payment of retirement benefits to any of its directors, officers or employees.

#### Personne

At April 30, 1964 the Corporation employed 72 persons, of whom 37 were administrative or professional employees. None of the employees of the Corporation is represented by a collective bargaining agent. It is expected that increases in the number of employees of the Corporation will be required in the carrying out of the program to establish a commercial communications satellite system, and also in the operation of the system, including command and control facilities and such of the terminal stations in the United States as may be operated by the Corporation.

#### DESCRIPTION OF COMMON STOCK

For a full description of the Common Stock of the Corporation, reference is made to the Communications Satellite Act of 1962, and to the Articles of Incorporation, as amended, of the Corporation, a copy of which is filed as an Exhibit to the Registration Statement. The statements herein summarizing certain provisions of said Articles and the Act are qualified by such reference.

The New York Stock Exchange, the Midwest Stock Exchange and the Pacific Coast Stock Exchange each has approved the listing on such Exchange of the shares of Common Stock to which this Prospectus relates, subject to official notice of issuance, the furnishing of evidence of satisfactory distribution of the shares and the furnishing of certain other documents. The date for the commencement of trading of such shares on these Exchanges has not been determined, and is subject, among other things, to the prior registration of such shares under the Securities Exchange Act of 1934.

The transfer agents for the Common Stock are Continental Illinois National Bank and Trust Company of Chicago, Chicago, Ill.; Manufacturers Hanover Trust Company, New York, N. Y.; and Wells Fargo Bank, San Francisco, Calif.

The registrars for the Common Stock are The First National Bank of Chicago, Chicago, Ill.; The Chase Manhattan Bank, New York, N. Y.; and Bank of America National Trust and Savings Association, San Francisco, Calif.

By amendment of the Articles of Incorporation effective May 6, 1964, the authorized capital of the Corporation was increased from 100 shares of Common Stock, without par value, to 10,000,100 such shares.

## Series I and Series II Shares

Shares of Common Stock are issuable in two series designated respectively Series I and Series II. Except as stated below under "Restrictions on Ownership and Transfer of Shares" and "Voting Rights", the rights of a holder of a Series I share, as such, and the rights of a holder of a Series II share, as such, are the same.

Shares issued or transferred to persons other than authorized carriers are Series I shares. Shares issued or transferred to authorized carriers are Series II shares. Authorized carriers are those communications common carriers, as defined below, which have been authorized by the FCC to own shares of stock of the Corporation. Shares of either Series may not be issued or transferred to a communications common carrier which is not an authorized carrier or to persons having certain relationships with a communications common carrier. See "Restrictions on Ownership and Transfer of Shares".

Under the provisions of the Act and the Articles of Incorporation, in any offering by the Corporation of Common Stock, 50% of the shares to be offered must be reserved for offering and offered for purchase by authorized carriers. Shares reserved and offered to authorized carriers but not purchased by them may be offered to other persons.

# Dividend Rights

Holders of Common Stock are entitled to receive such dividends, in cash, in property or in shares of stock of the Corporation, as may be declared by the Board of Directors. Holders of Common Stock, as such, have equal dividend rights, irrespective of the Series of shares of Common Stock held by them.

#### Liquidation

Upon any liquidation, dissolution or winding up of the Corporation, holders of shares of Common Stock, irrespective of the Series of such shares held by them, are entitled to receive, pro rata, the assets of the Corporation available for distribution.

## Restrictions on Ownership and Transfer of Shares

Subject to the limitations referred to below, holders of Series I shares or of Series II shares may at any time sell or otherwise dispose of such shares to any person to whom shares of either Series may be issued and, upon surrender of the share certificate for transfer, the transferee will receive a certificate, representing the same number of shares as the surrendered certificate, for shares of the Series appropriate to him.

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(i) Except for an authorized carrier, shares of Common Stock may not be owned or held, directly or indirectly, by any communications common carrier, or by a subsidiary or affiliated company of any communications common carrier, or by a trustee, director or officer of any of the foregoing. For these purposes, the term "communications common carrier" has the meaning of the term "common carrier" as used in the Communications Act of 1934, and also includes any person or entity which owns or controls, directly or indirectly, or is under direct or indirect common control with, any such carrier, but does not include the Corporation. Reference is made to the definition, in the By-laws of the Corporation, of the terms "subsidiary" and "affiliated company" of a "communications common carrier". See "Voting Rights".

(ii) The aggregate number of shares of Common Stock owned or held, directly or indirectly, by authorized carriers may not at any time exceed 50% of the total number of shares of Common Stock issued and outstanding.

(iii) Not more than an aggregate of 20% of the number of shares of Common Stock owned or held by persons other than authorized carriers may be owned or held by persons of the classes described in paragraphs (1) through (5) of Section 310(a) of the Communications Act of 1934. The classes as described consist of aliens, foreign governments, representatives of aliens or foreign governments, and corporations organized under the laws of foreign governments (hereinafter collectively called Alien Persons); corporations of which any officer or director is an alien or of which more than 20% of the capital stock is owned of record or voted by Alien Persons; and a corporation which is directly or indirectly controlled by any other corporation of which any officer or more than one-fourth of the directors are aliens or of which more than 25% of the capital stock is owned of record or voted by Alien Persons.

(iv) As provided in the Act, the number of shares of Common Stock owned or held by any person (other than an authorized carrier) or syndicate or affiliated group of such persons may not at any time exceed 10% of the total number of shares of Common Stock at the time outstanding, or, as provided in the Articles of Incorporation, such lesser percentage thereof as the Board of Directors may from time to time determine for the purpose of encouraging the widest distribution of shares of Common Stock to the American public. Notice of any such determination by the Board of Directors must be mailed to each record holder of Common Stock not less than ten days prior to the effective date of such determination. The ownership of shares acquired before the effective date of any such determination is not affected thereby. Pursuant to such provisions of the Articles of Incorporation, the Board of Directors has fixed 1% as the maximum percentage of the outstanding shares of Common Stock which may be owned or held by any shareholder (other than an authorized carrier) or syndicate or affiliated group of such shareholders. The FCC has advised the Corporation that it has determined that any action by the Corporation fixing such a maximum percentage of less than 10% is subject to review by the FCC to ascertain its reasonableness in the light of the purposes and objectives of the Act. The Corporation has been advised by its special counsel, Messrs. Wilmer, Cutler & Pickering, Washington, D. C., that, in the opinion of such firm, the FCC does not have authority to review and set aside such action of the Board of Directors, and that any such action of the Board may be determined to be invalid under the Act only by the courts.

(v) No authorized carrier or affiliated group of such carriers may sell or transfer to persons other than authorized carriers shares of Common Stock totalling, in any consecutive 12-month

period, more than 2% of the greatest number of Series II shares issued and outstanding at any time during such period, except pursuant to a general public offering or in conformity with regulations adopted by the Board of Directors to encourage the widest distribution of shares of Common Stock to the American public.

(vi) The FCC is authorized, upon application by any authorized carrier and after notice and hearing, to require any other authorized carrier which owns shares of Common Stock to transfer to the applicant, for a fair and reasonable consideration, such number of shares as the FCC determines will advance the public interest and the purposes of the Act.

## Voting Rights

Holders of Common Stock have exclusive voting rights. Except as otherwise stated in the following three paragraphs, each share of Common Stock, irrespective of Series, is entitled to one vote on each matter submitted to a vote at a meeting of shareholders.

Holders of Series I shares of Common Stock are entitled to elect six directors. In voting for directors, each holder of Series I shares has the right to vote the number of shares held by him for six candidates, or to cumulate such shares and give one candidate as many votes as the number of his shares multiplied by six shall equal, or to distribute such votes on the same principle among any number of candidates not exceeding six. No Series I share may be voted for the election of directors if such vote is subject to the direction or control of a person ineligible to own or hold Series I shares. See "Restrictions on Ownership and Transfer of Shares", above.

Holders of Series II shares of Common Stock are entitled to elect six directors. In voting for directors, each holder of Series II shares has the right to cumulate such shares and give one candidate as many votes as the number of shares held by him multiplied by six shall equal, or to distribute such votes on the same principle among any number of candidates not exceeding three. Under the Act and the Articles of Incorporation no holder of Series II shares and no trustee for such a holder may vote, either directly or indirectly, through the votes of subsidiary or affiliated companies, nominees or any persons subject to his direction or control, for more than three candidates. The By-laws of the Corporation provide that, in the event that any holder of Series II shares or a trustee for such holder casts votes, either directly or indirectly, through subsidiary or affiliated companies, nominees, or persons subject to his direction or control, for more than three candidates, only the votes so cast for those three of such candidates who receive the highest number of the votes so cast shall be counted, and the votes so cast for any other such candidates shall not be counted. The By-laws also provide that an association, joint-stock company, trust, corporation or other entity shall be deemed to be a subsidiary of a communications common carrier, as defined above, if more than 50% of its shares entitled under normal circumstances to elect a majority of its board of directors or trustees are owned or controlled directly or indirectly by such carrier, and that any such entity shall be deemed to be an affiliated company of a communications common carrier if it is otherwise directly or indirectly subject to the control of, or is under direct or indirect common control with, such carrier.

No share of Common Stock, irrespective of Series, may be voted on any matter at a meeting of shareholders if, at the time of such meeting, the share is owned or held in violation of the Act or any regulation promulgated thereunder or in violation of the Articles of Incorporation or any regulation or determination made by the Board of Directors thereunder; and the Corporation may, in accordance with

regulations adopted by the Board of Directors, require that the holder of shares furnish appropriate information to this effect in connection with the voting of his shares.

The By-laws of the Corporation provide that, at any meeting of shareholders for the election of directors (a) a majority of the shares of Series I Common Stock entitled to vote thereat constitutes a quorum for the election of directors by holders of shares of such Series, and (b) a majority of shares of Series II Common Stock entitled to vote thereat constitutes a quorum for the election of directors by the holders of shares of such Series, provided that, with respect to each Series, if such quorum shall not have been attained within 30 days from the date of the meeting as originally called, one-third of the shares of such Series entitled to vote thereat constitutes a quorum for the purpose of election of directors by holders of shares of such Series. Except where a greater proportion is required by law, one-third of the total number of shares (Series I and Series II) entitled to vote thereat constitutes a quorum for the transaction of any business other than the election of directors.

It is the intention of the present Board of Directors, in the event that, upon completion of the distribution of the shares offered by this Prospectus, the aggregate number of shares of Common Stock held by authorized carriers constitutes substantially less than 50% of the total number of shares of Common Stock then outstanding, to submit to the Congress a request in substance to the effect that the Act be amended to provide that, as nearly as may be, the number of directors to be elected by shareholders which are authorized carriers (holders of Series II shares), and the number of directors to be elected by other shareholders (holders of Series I shares), shall be in proportion to the respective aggregate numbers of shares of Common Stock held by the holders of shares of each such Series.

#### Transfer Procedures

The Board of Directors is authorized to establish procedures with respect to the transfer of shares of Common Stock to enforce the limitations referred to under "Restrictions on Ownership and Transfer", above. Procedures established by the Board of Directors require that, in connection with each transfer of shares on the books of the Corporation, the transferee complete an application for transfer of the shares. Such application calls for information about the transferee's citizenship status, relationship with communications common carriers and other matters related to the limitations on ownership and transfer of shares of Common Stock. Such an application for transfer must also be completed by each person who purchases shares from any of the Underwriters.

Neither the Act nor the Articles of Incorporation define the respective rights, as between themselves, of the seller and purchaser of shares where, because of the restrictions on the ownership and transfer of shares, the purchaser is not entitled to have the shares transferred to him on the books of the Corporation. The respective rights of the seller and purchaser in such a case would be determined under the laws or other rules applicable to such sale. The Articles of Incorporation provide, however, that nothing in the provisions thereof limiting the ownership and transfer of shares shall be deemed to affect the right of the purchaser in such a case to transfer his interest in the shares to any person who, under the provisions of the Act and the Articles, lawfully may acquire such interest.

#### Miscellaneous

No conversion rights, preemptive rights, redemption rights or sinking fund provisions are applicable to the Common Stock. Shares of Common Stock offered hereby will be fully-paid and non-assessable.

Under the provisions of the Act, shares of Common Stock owned by an authorized carrier are not eligible to be included in the rate base of such carrier.

The Corporation will furnish to its shareholders annually a report containing certified financial statements.

Under the provisions of the Act, the Corporation is authorized to issue, in addition to shares of Common Stock without par value, non-voting securities, bonds, debentures, and other certificates of indebtedness as it may determine. The Articles of Incorporation at present provide for the issuance only of Common Stock without par value having the voting rights described above. The issuance of any securities other than the shares offered by this Prospectus, and the borrowing of moneys or assumption of any obligation in respect of securities of others, are subject to authorization by the FCC.

We have examined the financial statements of Communications Satellite Corporation listed below:

Statement of assets, preliminary survey, research, development, and organization expenses, and liabilities and capital, December 31, 1963.

Statement of cash receipts and disbursements for the period from February 1, 1963 (date of incorporation) to December 31, 1963.

Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the assets, preliminary survey, research, development, and organization expenses, and liabilities and capital of the Corporation at December 31, 1963 and the cash receipts and disbursements of the Corporation for the period from February 1, 1963 to December 31, 1963, in conformity with generally accepted accounting principles consistently applied.

HASKINS & SELLS

Washington, D. C., February 28, 1964

# COMMUNICATIONS SATELLITE CORPORATION

STATEMENT OF ASSETS, PRELIMINARY SURVEY, RESEARCH, DEVELOPMENT, AND ORGANIZATION EXPENSES, AND LIABILITIES AND CAPITAL

December 31, 1963 and (Unaudited) March 31, 1964

# ASSETS, AND PRELIMINARY SURVEY, RESEARCH, DEVELOPMENT, AND ORGANIZATION EXPENSES

o(batibushur)national commended cations satellite system. The amounts for the time	December 31, 1963	March 31, 1964 (Unaudited)
Property at Cost: Furniture, office equipment, and automobiles Leaseholds	\$ 80,405 20,983	\$ 93,775 34,891
Total	101,388 14,192	128,666 20,504
000,002 Property—Net	87,196	108,162
Current Assets: Cash Advances and deposits Prepayments—Insurance, rent, etc.	246,807 3,500 6,285	288,417 1,772 4,285
Total Current Assets	256,592	294,474
Other Assets Assets	2,000	2,000
Preliminary Survey, Research, Development, and Organization Expenses (Note 1)	1,012,985	1,444,978
L. C. LATOT	\$1,358,773	\$1,849,614
and accrued liabilities at beginning of period	ounts payable	Add acc
LIABILITIES AND CAPITAL		
Capital—Common stock—authorized, 100 shares without par value, issued and outstanding, 14 shares. (Authorized shares increased to 10,000,100 shares subsequent to March 31, 1964)—See "Description of Common Stock"	\$ 1,400	\$ 1,400
ed and withheld (207,373) (198,214)	φ 1,400	φ 1,700
Current Liabilities: 10  Notes payable to banks (Note 2)  Accounts payable  Accrued interest  Other (accrued salaries and payroll taxes accrued and withheld)	1,150,000 157,245 25,761 24,367	1,650,000 111,840 40,543 45,831
Total Current Liabilities	1,357,373	1,848,214
COMMITMENTS (Note 4) TOTAL	\$1,358,773	\$1,849,614
ing Notes to Financial Statements are an integral part of this Statement	The accompany	nan-seduca Alonia

The accompanying Notes to Financial Statements are an integral part of this Statement.

## STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

For the Period from February 1, 1963 (Date of Incorporation) to December 31, 1963 and (Unaudited) for the Three Months Ended March 31, 1964

	February 1, 1963 to December 31, 1963	Three months ended March 31, 1964 (unaudited)
RECEIPTS:		
Bank loans	\$1,150,000	\$ 500,000
Sales of common stock	1,400	
deducted from interest expense)	198,754	
Son 8017	1,350,154	500,000
DISBURSEMENTS:	the assets, pid	CURRENT ASSET
Purchases of furniture, office equipment and automobiles—net	80,405	13,462
Leasehold costs	20,983	13,908
Advances and deposits—net (credit)	3,500	(1,728)
Prepayments—Insurance, rent, etc.—net (credit)	6,285	(2,000)
Purchase of temporary investments	198,754	
Other assets	2,000	
Preliminary survey, research, development and organization expenses (Note 1)	1,012,985	431,993
Ald Classes (accrual basis)	1,324,912	455,635
Add accounts payable and accrued liabilities at beginning of period (settled by cash disbursements or continued as liabilities at end of period)		207,373
Deduct amounts included above which have not involved cash dis- bursements and which are represented by the following at the end of the respective periods:		CAPITAL—Come and outstands shares subsec
Accounts payable, accrued interest, accrued salaries, and pay-	***********	Stock
roll taxes accrued and withheld	(207,373)	(198,214)
Allowance for depreciation and amortization	(14,192)	(6,404)
Total Disbursements (cash basis)	1,103,347	458,390
NET INCREASE IN CASH DURING PERIOD	246,807	41,610
Cash Balance at Beginning of Period		246,807
Cash Balance at End of Period	\$ 246,807	\$ 288,417
	TANK T	

The accompanying Notes to Financial Statements are an integral part of this Statement.

# COMMUNICATIONS SATELLITE CORPORATION

# NOTES TO FINANCIAL STATEMENTS

December 31, 1963 and (Unaudited) March 31, 1964

# Preliminary Survey, Research, Development, and Organization Expenses

These amounts represent expenditures for organization matters, hearings and negotiations, research and development, and other corporate activities incident to the formation of a program for the creation of an international communications satellite system. The amounts for the three months ended March 31, 1964 include legal and accounting fees and printing costs approximating \$25,000 in connection with the proposed sale of capital stock contemplated by this Prospectus; and such amounts will constitute part of the capital stock expense of the issue. It is anticipated that as or after the system is developed, the expenditures described in this note, as well as additional expenditures of generally similar character, will be transferred to utility plant, amortized against income of future years, or otherwise disposed of as the Federal Communications Commission may approve or direct. A summary of these expenditures for the periods indicated is as follows:

ats for the Corporation which may require modification of	February 1, 1963 (Date of Incorporation) to December 31, 1963	Three Months Ended March 31, 1964 (Unaudited)	Commission acco
Organization expenses (legal fees and other expenses prior to incorporation)	\$ 81,692		\$ 81,692
Salaries of officers and employees	459,381	\$ 234,923	694,304
Fees of directors	23,600	5,200	28,800
Legal, accounting, and other professional fees	70,145	38,323	108,468
Travel and related expenses	36,316	27,294	63,610
Office rent and maintenance	33,783	18,921	52,704
Printing, stationery, and office expenses	34,182	25,038	59,220
Employees' relocation expenses and insurance benefit premiums	22,046	9,678	31,724
Technical consultants, data processing costs, and contract services incident to research program	173,457	31,641	205,098
Interest on notes payable (net of \$1,246 interest received on temporary investments)	24,514	14,783	39,297
Taxes and licenses	13,208	9,116	22,324
Depreciation and amortization	14,192	6,404	20,596
Other expenditures	26,469	10,672	37,141
Total	\$1,012,985	\$ 431,993	\$1,444,978

# 2. Notes Payable to Banks

The notes payable to banks represent borrowings under a commitment of the lending banks to make loans to the Corporation, not exceeding \$5,000,000, as the Corporation may from time to time request. Borrowings under the agreement are subject to specific authorizations of the Federal Communications

# 3. Federal Communications Commission

The Corporation is subject to regulation by the Federal Communications Commission as explained under "Regulation". The Federal Communications Commission has not approved or reviewed the accounting procedures employed by the Corporation to date. The inclusion of the financial statements in this Prospectus should not be regarded as approval by the Federal Communications Commission as to the accuracy of any material therein nor of the accounting procedures used. The Federal Communications Commission may prescribe a system of accounts for the Corporation which may require modification of existing accounting procedures.

## 4. COMMITMENTS AND GENERAL

The Corporation has certain commitments in connection with its program for the development and establishment of a commercial communications satellite system. For a summary of the program, the range of estimated costs, and significant contract information, see "Program of the Corporation". The Corporation also has entered into short-term leases, with renewal options, for office space. Reference is also made to the matters referred to under "The Venture and Its Risks".

#### UNDERWRITING

The Underwriters named below, acting through their Representatives named on the cover of this Prospectus, have entered into a Purchase Contract with the Corporation pursuant to which they have severally agreed, subject to the terms and conditions of the Purchase Contract, to purchase from the Corporation the number of shares of Common Stock set forth below opposite their respective names. Under certain circumstances involving default of Underwriters, less than all of such shares of Common Stock may be purchased by the Underwriters. Under certain circumstances the commitments of non-defaulting Underwriters may be increased. Under the provisions of the Purchase Contract the obligation of the Underwriters to purchase the shares of Common Stock specified in the Purchase Contract is subject, among other things, to the receipt by the Corporation from authorized carriers of the purchase price for at least 90% of the shares of Common Stock subscribed for by authorized carriers, after applying the allocation formula set forth under "Carrier Subscription Matters".

Name of Underwriter	Address of Underwriter	Number of Shares to be Purchased
Merrill Lynch, Pierce, Fenner & Smith Incorporated	70 Pine Street, New York 5, N.Y.	100,000
Blyth & Co., Inc	14 Wall Street, New York 5, N.Y.	100,000
The First Boston Corporation	20 Exchange Place, New York, N. Y. 10005	100,000
Kidder, Peabody & Co. Incorporated	20 Exchange Place, New York 5, N.Y.	100,000
Kuhn, Loeb & Co. Incorporated	30 Wall Street, New York 5, N. Y.	100,000
Lazard Frères & Co	44 Wall Street, New York 5, N. Y.	100,000
Lehman Brothers	One William Street, New York 4, N.Y.	100,000
Carl M. Loeb, Rhoades & Co	42 Wall Street, New York 5, N.Y.	100,000
Paine, Webber, Jackson & Curtis	25 Broad Street, New York 4, N.Y.	100,000
White, Weld & Co. Incorporated	20 Broad Street, New York 5, N.Y.	100,000
Dean Witter & Co	45 Montgomery Street, San Francisco 6, California	100,000
Eastman Dillon, Union Securities & Co	One Chase Manhattan Plaza, New York 5, N. Y.	50,000
Glore, Forgan & Co	45 Wall Street, New York 5, N. Y.	50,000
Harriman Ripley & Co., Incorporated	60 Broad Street, New York 4, N.Y.	50,000
Hornblower & Weeks	1 Chase Manhattan Plaza, New York 5, N. Y.	50,000
Smith, Barney & Co. Incorporated	20 Broad Street, New York 5, N. Y.	50,000
Stone & Webster Securities Corporation	90 Broad Street, New York 4, N. Y.	50,000
Bache & Co	36 Wall Street, New York 5, N.Y.	29,000
Bear, Stearns & Co	One Wall Street, New York 5, N.Y.	29,000
A. G. Becker & Co. Incorporated	120 South La Salle Street, Chicago 3, Illinois	29,000
Clark, Dodge & Co. Incorporated	61 Wall Street, New York 5, N.Y.	29,000
Dominick & Dominick, Incorporated	14 Wall Street, New York 5, N. Y.	29,000
Drexel & Co	1500 Walnut Street, Philadelphia 1, Pennsylvania	29,000
Hallgarten & Co	44 Wall Street, New York 5, N.Y.	29,000
Hayden, Stone Incorporated	25 Broad Street, New York, N. Y. 10004	29,000
Hemphill, Noyes & Co	8 Hanover Street, New York 4, N. Y.	29,000
E. F. Hutton & Company Inc	One Chase Manhattan Plaza, New York 5, N.Y.	29,000

Name of Underwriter	Address of Underwriter	Number of Shares to be Purchased	Number of Underwriter Turchased	Address
W E Hutton & Co	Secure have lettered into a Pinchage Course	bis Pros		-
W. E. Hutton & Co.	14 Wall Street, New York, N. Y. 10005	29,000	Fulton, Reid & Co., Inc.	2100 East Ohio B
Lee Higginson Corporation	20 Broad Street, New York 5, N. Y.	29,000	Robert Garrett & Sons	South & Redwood
F. S. Moseley & Co.	60 Broad Street, New York, N. Y. 10004	29,000	Hayden, Miller & Co	Union Commerce
Reynolds & Co.	120 Broadway, New York 5, N. Y.	29,000	H. Hentz & Co	72 Wall Street, N
Shearson, Hammill & Co	14 Wall Street, New York 5, N. Y.	29,000	Hirsch & Co., Incorporated	25 Broad Street,
Wertheim & Co.	1 Chase Manhattan Plaza, New York 5, N. Y.	29,000	Irving Lundborg & Co	310 Sansome Stre
Alex. Brown & Sons	135 East Baltimore Street, Baltimore 2, Maryland	25,500	McDonnell & Co. Incorporated	120 Broadway, N
Equitable Securities Corporation	Two Wall Street, New York 5, N. Y.	25,500	Merrill, Turben & Co., Inc	1612 Union Comm
Goodbody & Co.	2 Broadway, New York 4, N. Y.	25,500	Model, Roland & Co	120 Broadway, N
Johnston, Lemon & Co.	Southern Bldg., Washington 5, D. C.	25,500	Moore, Leonard & Lynch	Union Trust Bldg
Ladenburg, Thalmann & Co	25 Broad Street, New York 4, N. Y.	25,500	Newhard, Cook & Co	400 Olive Street,
R. W. Pressprich & Co. L. F. Rothschild & Co.	80 Pine Street, New York 5, N. Y.	25,500	Reinholdt & Gardner	400 Locust Street
Salomon Brothers & Hutzler	120 Broadway, New York 5, N. Y.	25,500	Riter & Co	40 Wall Street, N
Shields & Company Incorporated	Sixty Wall Street, New York, N. Y. 10005	25,500	The Robinson-Humphrey Company, Inc	2000 Rhodes-Have 155 Sansome Stre
F. S. Smithers & Co	44 Wall Street, New York 5, N. Y.	25,500	Shuman, Agnew & Co	Union Trust Bldg
Spencer Trask & Co.	45 Wall Street, New York 5, N. Y.	25,500	Singer, Deane & Scribner	123 South Broad
Tucker, Anthony & R. L. Day	60 Broad Street, New York, N. Y. 10004	25,500	Stroud & Company, Incorporated	Ford Bldg., Detro
G. H. Walker & Co. Incorporated	120 Broadway, New York 5, N. Y. 45 Wall Street, New York 5, N. Y.	25,500	Watling, Lerchen & Co	30 Broad Street,
Wood, Struthers & Co., Inc.		25,500	Arnhold and S. Bleichroeder, Inc.	Two Broadway, 1
Allen & Company	20 Exchange Place, New York 5, N. Y.	25,500	Auchincloss, Parker & Redpath	Calvert & Redwood
American Securities Corporation	30 Broad Street, New York 4, N. Y. 25 Broad Street, New York 4, N. Y.	23,500	Bateman, Eichler & Bingham Incorporated	453 South Spring
Bacon, Whipple & Co.	135 South La Salle Street, Chicago 3, Illinois	23,500	Boettcher and Company	828 17th Street, I
Robert W. Baird & Co., Incorporated	731 North Water Street, Milwaukee 1, Wisconsin	23,500 23,500	Bosworth, Sullivan & Company, Inc	660-17th Street, I
Baker, Weeks & Co	One Wall Street, New York 5, N. Y.	23,500	Butcher & Sherrerd	1500 Walnut Stre
William Blair & Company	135 South La Salle Street, Chicago 3, Illinois	23,500	Chapman, Howe & Co	208 South La Sall
Blair & Co., Granbery, Marache Incorporated	20 Broad Street, New York 5, N. Y.	23,500	Julien Collins & Company	105 South La Sal
Blunt Ellis & Simmons	111 West Monroe Street, Chicago 3, Illinois	23,500	Crowell, Weedon & Co	629 South Spring
J. C. Bradford & Co	414 Union Street, Nashville 3, Tennessee	23,500	Eppler, Guerin & Turner, Inc	1600 Fidelity Unio
J. M. Dain & Co., Inc	110 South Sixth Street, Minneapolis 2, Minnesota	23,500	Fahnestock & Co	65 Broadway, New
Dick & Merle-Smith	48 Wall Street, New York 5, N. Y.	23,500	First California Company Incorporated	300 Montgomery
R. S. Dickson & Company, Incorporated	30 Broad Street, New York 4, N. Y.	23,500	William Alumbia Margania Language Sala	California 9410
F. Eberstadt & Co.	65 Broadway, New York 6, N. Y.	23,500	First Southwest Company	Mercantile Bank
Estabrook & Co	15 State Street, Boston 9, Massachusetts	23,500	Halle & Stieglitz	52 Wall Street, N
W. C. Langley & Co	115 Broadway, New York 6, N. Y.	23,500	The Illinois Company Incorporated	231 South La Sal
McDonald & Company	Union Commerce Bldg., Cleveland 14, Ohio	23,500	The Johnson, Lane, Space, Smith Corporation	101 East Bay Str
New York Securities Co	52 Wall Street, New York 5, N. Y.	23,500	Laird & Company, Corporation	Wilmington Trust
The Ohio Company	51 North High Street, Columbus 15, Ohio	23,500	Laird, Bissell & Meeds	120 Broadway, N
Piper, Jaffray & Hopwood	115 South Seventh Street, Minneapolis 2, Minnesota	23,500	Legg & Co	22 Light Street, I
Schwabacher & Co	100 Montgomery Street, San Francisco 4, California	23,500	Lester, Ryons & Co	623 South Hope S
William R. Staats & Co. Incorporated	640 South Spring Street, Los Angeles 14, California	23,500	Loewi & Co. Incorporated	225 East Mason S
Ball, Burge & Kraus	1414 Union Commerce Bldg., Cleveland 14, Ohio	18,500	A. E. Masten & Co	First National Ba Pennsylvania
J. Barth & Co	404 Montgomery Street, San Francisco,	Dominical	McCormick & Co	135 South La Sal
to a Career Didied about the Demonstrate a 20 000 c	California 94104	18,500	The Milwaukee Company	207 East Michigan
Burnham and Company	60 Broad Street, New York 4, N. Y.	18,500	Mitchum, Jones & Templeton, Incorporated	510 South Spring
Coffin & Burr	64 Wall Street, New York 5, N. Y.	18,500	and a fine of the first of the	California
Courts & Co	11 Marietta Street, N.W., Atlanta 3, Georgia	18,500	Pacific Northwest Company	1000 Second Aver
Dempsey-Tegeler & Co., Inc	1000 Locust Street, St. Louis 1, Missouri	18,500	Rauscher, Pierce & Co., Inc	1200 Mercantile I
First of Michigan Corporation	2 Wall Street, New York 5, N. Y.	18,500	Wm. C. Roney & Co	2 Buhl Bldg., Det
Folger, Nolan, Fleming & Co. Incorporated	725 15th Street, N.W., Washington 5, D. C.	18,500	Date of Somplan 17 of Leaving Co. Co.	

d d	Number of Shares of Underwriter Purchased	Address of Underwriter washau to small	Number of Shares to be Purchased
-			
2	Fulton, Reid & Co., Inc	st Ohio Bldg., Cleveland 14, Ohio	18,500
П	Robert Garrett & Sons South &	Redwood Streets, Baltimore 3, Maryland	18,500
2		Commerce Bldg., Cleveland 14, Ohio	18,500
	H. Hentz & Co	Street, New York 5, N. Y.	18,500
3	Hirsch & Co., Incorporated	d Street, New York 4, N. Y.	18,500
6	Irving Lundborg & Co	some Street, San Francisco 4, California	18,500
	T. A 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	adway, New York 5, N. Y.	18,500
		ion Commerce Bldg., Cleveland 14, Ohio	18,500
8	TABLE CONTRACTOR CONTR	adway, New York 5, N. Y.	18,500
9		rust Bldg., Pittsburgh 19, Pennsylvania	18,500
		re Street, St. Louis 2, Missouri	18,500
	THE STATE OF THE PARTY OF THE P	ust Street, St. Louis 2, Missouri	18,500
		Street, New York 5, N. Y.	18,500
	The state of the s	odes-Haverty Bldg., Atlanta, Georgia 30303	18,500
		some Street, San Francisco 4, California Frust Bldg., Pittsburgh 19, Pennsylvania	18,500
		th Broad Street, Philadelphia 9, Pennsylvania	18,500 a 18,500
	THE REPORT OF THE PROPERTY OF	dg., Detroit 26, Michigan	18,500
Ĺ	the second of th	d Street, New York 4, N. Y.	12,500
	The state of the s	oadway, New York 4, N. Y.	12,500
	ridelifficions, I direct de months	& Redwood Streets, Baltimore 3, Maryland	12,500
		th Spring Street, Los Angeles 13, California	12,500
		Street, Denver 2, Colorado	12,500
	Doctroner and Company vivia	Street, Denver 2, Colorado	12,500
		alnut Street, Philadelphia 2, Pennsylvania	12,500
		th La Salle Street, Chicago 4, Illinois	12,500
	Julien Collins & Company 105 Sou	th La Salle Street, Chicago 3, Illinois	12,500
	Crowell, Weedon & Co	th Spring Street, Los Angeles 14, California	12,500
1	-Price; Guerri & a married, and a married of the state of	lelity Union Tower, Dallas 1, Texas	12,500
	- 000.00 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	dway, New York 6, N. Y.	12,500
		ntgomery Street, San Francisco,	12,500
		ile Bank Bldg., Dallas 1, Texas	12,500
	Halle & Stieglitz	Street, New York 5, N. Y.	12,500
	The state of the s	th La Salle Street, Chicago, Illinois 60604	12,500
I.	Tillion Company	t Bay Street, Savannah, Georgia	12,500
3 -	Laird & Company, Corporation Wilming	gton Trust Bldg., Wilmington 99, Delaware	12,500
8	The state of the s	adway, New York 5, N. Y.	12,500
		Street, Baltimore 3, Maryland	12,500
	99 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	th Hope Street, Los Angeles 17, California	12,500
		t Mason Street, Milwaukee 2, Wisconsin	12,500
		ational Bank Bldg., Pittsburgh 22,	Missier, Be
2	Renne Land Chase Streets, Baltimore L. Maryland tond 8,000	ylvania	12,500
	McCormick & Co	th La Salle Street, Chicago 3, Illinois	12,500
I		t Michigan Street, Milwaukee 2, Wisconsin	12,500
		th Spring Street, Los Angeles 13,	12 500
1	Calife Carreet Philadelphia 2 Pennsylvania (2 Diagonal)	cond Avenue, Seattle, Washington 98104	12,500
		ercantile Dallas Bldg., Dallas 1, Texas	12,500 12,500
		Bldg., Detroit 26, Michigan	12,500
1	Tim. C. Roney & Co 2 Dum	Dides, Detroit bo, miningan	12,500

Number of Shares		Number			Number
		of Shares to be			of Shares
Name of Underwriter	Address of Underwriter	Purchased	Name of Underwriter	Address of Underwriter	to be Purchased
Rotan, Mosle & Co	1510 Bank of the Southwest Bldg., Houston 2,	i-3P.0500 h	I. M. Simon & Co.	315 North Fourth Street, St. Louis 2, Missouri	8,000
Stein Bros. & Boyce, Inc	Texas	12,500	Stern, Frank, Meyer & Fox	Union Bank Bldg., Los Angeles, California 90014	8,000
Stern Brothers & Co	One Charles Center, Baltimore 1, Maryland	12,500	J. S. Strauss & Co.	155 Montgomery Street, San Francisco 4, California	8,000
Stifel, Nicolaus & Company, Incorporated	1009-15 Baltimore Avenue, Kansas City 5, Missouri 314 North Broadway, St. Louis 2, Missouri	12,500	C. E. Unterberg, Towbin Co	61 Broadway, New York, N. Y. 10006	8,000
Stone & Youngberg	1314 Russ Bldg., San Francisco 4, California	12,500	Van Alstyne, Noel & Co	40 Wall Street, New York 5, N.Y.	8,000
Sutro & Co	460 Montgomery Street, San Francisco 4, California	12,500	Wagenseller & Durst, Inc	626 South Spring Street, Los Angeles 14, California	8,000
Underwood, Neuhaus & Co. Incorporated	Houston Club Bldg., Houston 2, Texas	1-0-0-1-1-1-1-0-1-1-1-1-1-1-1-1-1-1-1-1	Adams & Peck	120 Broadway, New York, N. Y. 10005	6,500
Weeden & Co. Incorporated	25 Broad Street, New York 4, N. Y.	12,500 12,500	Bioren & Co	1424 Walnut Street, Philadelphia 2, Pennsylvania	6,500
Winslow, Cohu & Stetson Incorporated	26 Broadway, New York 4, N. Y.	12,500	Boenning & Co	The Alison Bldg., Rittenhouse Square,	mosgoggi
Abbott, Proctor & Paine	911 East Main Street, Richmond 14, Virginia	8,000	Lasually Lower, Nashynie, J. Lennessections & Children	Philadelphia 3, Pennsylvania	6,500
Anderson & Strudwick	913 East Main Street, Richmond 12, Virginia	8,000	Burgess & Leith	53 State Street, Boston 9, Massachusetts	6,500
Brush, Slocumb & Co. Inc	465 California Street, San Francisco 4, California	8,000	Chace, Whiteside & Winslow, Inc	24 Federal Street, Boston 10, Massachusetts	6,500
Carolina Securities Corporation	Insurance Bldg., Raleigh, North Carolina	8,000	Chaplin, McGuiness & Co	Peoples Bank Bldg., Pittsburgh 22, Pennsylvania	6,500
Richard W. Clarke Corporation	535 Fifth Avenue, New York 17, N. Y.	8,000	Clayton Securities Corporation	147 Milk Street, Boston 9, Massachusetts First National Bank Bldg., Pittsburgh 22, Pennsylvan	6,500
Common, Dann & Co	502 Marine Trust Bldg., 237 Main Street,	0,000	Cunningham, Schmertz & Co., Inc	1113 East Main Street, Richmond 19, Virginia	O PERSONAL DEP
	Buffalo, N. Y. 14203	8,000	Shelby Cullom Davis & Co.	116 John Street, New York 38, N. Y.	6,500 6,500
Cooley & Company		8,000	Elkins, Morris, Stokes & Co	428 Land Title Bldg., Philadelphia 10, Pennsylvania	6,500
Dallas Union Securities Co., Inc	1001 Adolphus Tower, Dallas 2, Texas	8,000	Evans & Co. Incorporated	300 Park Avenue, New York 22, N.Y.	6,500
Davis, Skaggs & Co	111 Sutter Street, San Francisco 4, California	8,000	W. D. Gradison & Co.	408 Dixie Terminal Bldg., Cincinnati 2, Ohio	6,500
DeHaven & Townsend, Crouter & Bodine	1500 Chestnut Street, Philadelphia 2, Pennsylvania	8,000	Hickey & Co.	135 South La Salle Street, Chicago 3, Illinois	6,500
Dewar, Robertson & Pancoast	Milam Bldg., San Antonio 5, Texas	8,000	Hill Richards & Co., Incorporated	621 South Spring Street, Los Angeles 14, California	6,500
Dittmar & Company, Inc	201 North St. Mary's Street, San Antonio 6, Texas	8,000	Hulme, Applegate & Humphrey, Inc	586 Union Trust Bldg., Pittsburgh 19, Pennsylvania	6,500
Eddleman, Pollok & Fosdick Inc	Two Broadway, New York 4, N. Y.	8,000	Indianapolis Bond and Share Corporation	120 East Market Street, Indianapolis 4, Indiana	6,500
A. G. Edwards & Sons	440 Bank of the Southwest Bldg., Houston 2, Texas	8,000	Ingalls & Snyder	100 Broadway, New York 5, N.Y.	6,500
Elworthy & Co., Incorporated	409 North Eighth Street, St. Louis 1, Missouri 111 Sutter Street, San Francisco 4, California	8,000	Kalman & Company, Inc	136 Endicott Bldg., St. Paul 1, Minnesota	6,500
Emanuel, Deetjen & Co	120 Broadway, New York 5, N. Y.	8,000	Kay, Richards & Company	Union Trust Bldg., Pittsburgh 19, Pennsylvania	6,500
Fahey, Clark & Co	1737 Union Commerce Bldg., Cleveland 14, Ohio	8,000	Mason-Hagan, Inc	1017 East Main Street, Richmond 10, Virginia	6,500
Faulkner, Dawkins & Sullivan	60 Broad Street, New York 4, N. Y.	8,000 8,000	McKelvy & Company	1146 Union Trust Bldg., Pittsburgh 19, Pennsylvania	THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.
Ferris & Company	611 Fifteenth Street, N. W., Washington 5, D. C.	8,000	Middendorf, Colgate & Co	51 Broad Street, New York 4, N. Y.	6,500
Gregory & Sons	40 Wall Street, New York 5, N. Y.	8,000	Newburger, Loeb & Co	5 Hanover Square, New York 4, N. Y.	6,500
Hallowell, Sulzberger, Jenks, Kirkland & Co	Philadelphia National Bank Bldg., Philadelphia 7,	0,000	Pierce, Wulbern, Murphey, Inc.	222 West Adams Street, Jacksonville 1, Florida	6,500
Street New York S. N. V. W. S. and S. C. V. W. S. And S. C. V. W. S. And S. C. V. W. S. C.	Pennsylvania	8,000	Wm. E. Pollock & Co., Inc	45 Wall Street, New York 5, N. Y.	6,500
J. J. B. Hilliard & Son	419 West Jefferson Street, Louisville 2, Kentucky	8,000	Russ & Company, Incorporated	Alamo National Bldg., San Antonio, Texas	6,500
Howard, Weil, Labouisse, Friedrichs and Company	211 Carondelet Street, New Orleans, Louisiana 70130	8,000	Scherck, Richter Company, Inc	408 Olive Street, St. Louis, Missouri 63102	6,500
Janney, Battles & E. W. Clark, Inc	Central-Penn National Bank Bldg.,	0.000	Schmidt, Roberts & Parke	123 South Broad Street, Philadelphia 9, Pennsylvania	
Edward D. Jones & Co	1401 Walnut Street, Philadelphia 2, Pennsylvania 101 North Fourth Street, St. Louis 2, Missouri	8,000	Scott & Stringfellow	P. O. Box 1575, Richmond 13, Virginia	6,500
Jones, Kreeger & Co	1625 Eye Street, N. W., Washington 6, D. C.	8,000	Silberberg & Co	40 Wall Street, New York 5, N. Y.	6,500
Joseph, Mellen & Miller, Inc	1400 East Ohio Bldg., Cleveland 14, Ohio	8,000	Stix & Co	509 Olive Street, St. Louis 1, Missouri 305 Porter Bldg., Pittsburgh 19, Pennsylvania	6,500
Mackall & Coe	738 15th Street, N. W., Washington 5, D. C.	8,000	Thomas & Company	10 Post Office Square, Boston, Massachusetts 02105	6,500
Manley, Bennett, McDonald & Co	1100 Buhl Bldg., Detroit, Michigan 48226	8,000	Townsend, Dabney & Tyson	60 State Street, Boston 1, Massachusetts	6,500
Mead, Miller & Co	Charles and Chase Streets, Baltimore 1, Maryland	8,000 8,000	H. C. Wainwright & Co	1001 East Main Street, Richmond 19, Virginia	6,500
Mitchell, Hutchins & Co., Incorporated	231 South La Salle Street, Chicago 4, Illinois	8,000	J. C. Wheat & CoArthur Wiesenberger & Co	61 Broadway, New York 6, N. Y.	6,500
Moroney, Beissner & Co., Inc	Bank of the Southwest Bldg., Houston 2, Texas	8,000	Yarnall, Biddle & Co	1528 Walnut Street, Philadelphia 2, Pennsylvania	6,500 6,500
Mullaney, Wells & Company	135 South La Salle Street, Chicago 3, Illinois	8,000	Abraham & Co.	120 Broadway, New York 5, N. Y.	5,000
Newburger & Co	1401 Walnut Street, Philadelphia 2, Pennsylvania	8,000	Almstedt Brothers	425 West Market Street, Louisville 2, Kentucky	5,000
Putnam & Co	6 Central Row, Hartford, Connecticut 06103	8,000	Arthurs, Lestrange & Co.	2 Gateway Center, Pittsburgh 22, Pennsylvania	5,000
Saunders, Stiver & Co	One Terminal Tower, Cleveland 13, Ohio	8,000	Barret, Fitch, North & Co. Incorporated	111 West Tenth Street, Kansas City 5, Missouri	5,000
Chas. W. Scranton & Co	209 Church Street, New Haven 7, Connecticut	8,000	Jack M. Bass & Company	315 Fourth Avenue, North, Nashville 3, Tennessee	5,000
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Name of Underwriter Purchased	Address of Underwriter hymbou lo sms/	Numb of Shar to be Purcha
Birr, Wilson & Co., Inc	155 Sansome Street, San Francisco 4, California	5,00
Blewer, Glynn & Co	1536 Railway Exchange Bldg., St. Louis 1, Missouri	5,00
George D. B. Bonbright & Co	100 Powers Bldg., Rochester 14, N. Y.	5,00
Branch, Cabell & Co	814 East Main Street, Richmond 19, Virginia	5,00
P. W. Brooks & Co. Incorporated	120 Broadway, New York, N. Y. 10005	5,00
Caldwell Phillips, Inc	First National Bank Bldg., St. Paul 1, Minnesota	5,00
C. F. Cassell & Co., Inc	114 Third Street, N.E., Charlottesville, Virginia	5,00
Childs Securities Corporation	One Liberty Street, New York 5, N. Y.	5,00
City Securities Corporation	Circle Tower, Indianapolis 4, Indiana	5,00
Clark, Landstreet & Kirkpatrick, Inc	Life & Casualty Tower, Nashville 3, Tennessee	5,00
Collin, Norton & Co	Gardner Bldg., 506 Madison Avenue, Toledo 4, Ohio	5,00
C. C. Collings and Company, Inc.	Fidelity-Philadelphia Trust Bldg., Woland Williadelphia 9, Pennsylvania	5,00
Craigie & Co., Inc	616 E. Main Street, Richmond, Virginia 23215	5,00
Curtiss, House & Co	Union Commerce Bldg., Cleveland 14, Ohio	5,00
Doolittle & Co	Liberty Bank Bldg., Buffalo 2, N. Y.	5,00
Field, Richards & Co	1107 Central Trust Bank Tower, Cincinnati,	
First Nebraska Securities Corporation	Ohio 45202	5,00
First Southeastern Company	1001 O Street, Lincoln 1, Nebraska	5,00
Freehling & Co.	103 Twelfth Street, Columbus, Georgia	5,00
Fridley & Frederking	120 South La Salle Street, Chicago 3, Illinois	5,00
Funk, Hobbs & Hart, Inc.	617 Texas National Bank Bldg., Houston 2, Texas 1012 National Bank of Commerce Bldg.,	5,00
Marker Street Indianapolis 4 Indiana 9 6 500	San Antonio 5, Texas	5,00
Alester G. Furman Co., Inc	South Carolina National Bank Bldg., Greenville, South Carolina	5,00
Fusz-Schmelzle & Co., Inc	522 Olive Street, St. Louis 1, Missouri	5,00
Greene & Ladd	Third National Bldg., Dayton 2, Ohio	5,00
Hamershlag, Borg & Co	25 Broad Street, New York 4, N. Y.	5,00
Hanrahan & Co., Inc	332 Main Street, Worcester 8, Massachusetts	5,00
Harrison & Co	123 South Broad Street, Philadelphia 9, Pennsylvania	5.00
Hess, Grant & Remington Incorporated	123 South Broad Street, Philadelphia 9, Pennsylvania	5,00
. H. Hilsman & Co., Inc.	Citizens & Southern Bldg., Atlanta 1, Georgia	5,00
nterstate Securities Corporation	Johnston Bldg., Charlotte 2, North Carolina	5,00
nvestment Corporation of Norfolk	215 East Plume Street, Norfolk 10, Virginia	5,00
Kenower, MacArthur & Co	Ford Bldg., Detroit 26, Michigan	5,00
The Kentucky Company	320 South Fifth Street, Louisville 2, Kentucky	5,00
Cirkpatrick-Pettis Company	540 Omaha National Bank Bldg., Omaha, Nebraska	5,00
Kohlmeyer & Co	217 Carondelet Street, New Orleans 30, Louisiana	5,00
Lentz, Newton & Co	Alamo National Bldg., San Antonio 5, Texas	5,00
D. Lunt & Co	906 Marine Trust Bldg., Buffalo 3, N. Y.	5,00
V. L. Lyons & Co	235 South Fifth Street, Louisville 2, Kentucky	5,00
Iason Brothers	63 Wall Street, New York, N. Y. 10005	5,00
AcCarley & Company, Inc.	1130 First Western Bldg., Oakland 12, California 35 Page Avenue, P. O. Box 14, Asheville,	5,00
IcCourtney-Breckenridge & Company	North Carolina	5,000
filburn, Cochran & Company, Inc	1030 Boatmen's Bank Bldg., St. Louis 2, Missouri 110 East First Street, Wichita 2, Kansas	5,00
furch & Co., Inc	330 Hanna Bldg., Cleveland 15, Ohio	5,00
V. H. Newbold's Son & Co	1517 Locust Street, Philadelphia 2, Pennsylvania	5,00
Orvis Brothers & Co	30 Broad Street, New York 4, N. Y.	5,00 5,00
	pass of Company P. 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5,00

1	Number of Shares to be to be Address of UnderwriatirwrabnU do amaN Purchased		Number of Shares to be Purchased
	Charles A. Parcells & Co	ot Bldg., Detroit 26, Michigan	5,000
ı		ore Avenue, Kansas City 5, Missouri	5,000
1		h Street, Kansas City 5, Missouri	5,000
ı		eet, Fayetteville, North Carolina	5,000
1		Street, N.W., Albuquerque, New Mexico	CA LANGERSON
1	Raffensperger, Hughes & Co., Inc	eridian Street, Indianapolis 4, Indiana	5,000
ı		treet, New York 5, N. Y.	5,000
١		road Street, Philadelphia 9, Pennsylvania	5,000
1		rust Bldg., Washington 5, D. C.	5,000
1		a Salle Street, Chicago 4, Illinois	5,000
١	Rowles, Winston & Co., Incorporated	est Tower, Houston, Texas 77002	5,000
1		Street, Rochester 14, N. Y.	5,000
1		tional Bank Bldg., Dallas 1, Texas	5,000
1		reet, Dallas 1, Texas	5,000
1	AND THE PROPERTY OF THE PARTY O	rings Bldg., Cincinnati 2, Ohio	5,000
ı		aza Bldg., Pittsburgh 19, Pennsylvania	5,000
1		Avenue, Redwood City, California	5,000
ı		reet, St. Louis 1, Missouri	5,000
ı		gton Bldg., Seattle 1, Washington	5,000
ı		y, New York, N. Y. 10005	5,000
ı		al Bldg., Birmingham 3, Alabama	5,000
ı		nery Street, San Francisco 4, California	5,000
ı		Street, Omaha, Nebraska 68131	5,000
ı		National Bank Bldg., Lynchburg, Virgini	The state of the s
ı		Street, Philadelphia 2, Pennsylvania	5,000
ı		et, New York 5, N. Y. Bank Bldg., Columbus 15, Ohio	5,000
1	m	lg., Buffalo 2, N. Y.	5,000
ı	THEFT		5,000
ı	THE PARTY AND THE PARTY OF THE	ckson Blvd., Chicago 4, Illinois reet, Savannah, Georgia	5,000
ı		eet, Savannah, Georgia anklin Street, Richmond 20, Virginia	5,000
ı	THE RESIDENCE OF THE RESIDENCE OF THE PARTY	road Street, Philadelphia 9, Pennsylvania	5,000 5,000
ı	TYPE OF THE PARTY	al Bank Bldg., Atlanta 3, Georgia	5,000
ı	** 1113 P. L. C. P. C.	eet, St. Louis 1, Missouri	5,000
ı		Street, Allentown, Pennsylvania	5,000
ı		y, New York, N. Y. 10005	5,000
ı		reet, New York 4, N. Y.	5,000
ı	The state of the s	Louisville 2, Kentucky	
ı	LILES WISCORSIN AVENUE. MINWAUKEE & MISCORSINEL DAVINA	Bank Bldg., Minneapolis 2, Minnesota	3,500
ı		y, New York 38, N. Y.	3,500
ı		nk of Commerce Bldg.,	Wason &
ı	San Anton	io 5, Texas	3,500
		rust Bldg., Baltimore 2, Maryland	3,500
	Bingham, Sheldon & Co	Vater Street, Milwaukee 2, Wisconsin	3,500
		Bank Bldg., Minneapolis 2, Minnesota	3,500
		t Street, Philadelphia,	2 500
	E. D. Boynton & Co., Inc	y, New York 6, N. Y.	3,500
		er Plaza, Philadelphia 2, Pennsylvania	3,500
		Bldg., Providence 3, Rhode Island	3,500
	, and a substitution of the substitution of th	-135, 110 recirco o, Ithour Island	3,500

Number of Shares	Number of Shares
Name of Underwriter Address of Underwriter washall to small 1	to be Purchased
Burrows, Smith and Company	3,500
Byrd Brothers 11 Broadway, New York 4, N. Y.	3,500
Campbell, McCarty & Company Incorporated 1500 Buhl Bldg., Detroit 26, Michigan	3,500
Carter, Berlind & Weill	3,500
The Cherokee Securities Company	3,500
Chiles & Company Farm Credit Bldg., Omaha 2, Nebraska	3,500
John W. Clarke & Co	3,500
G. H. Crawford Co., Inc	3,500
Dixon Bretscher Noonan Inc	3,500
Oscar E. Dooly & Co	3,500
Draper, Sears & Co. Incorporated 50 Congress Street, Boston 2, Massachusetts	3,500
Eisele & King, Libaire, Stout & Co 50 Broadway, New York, N. Y. 10004	3,500
Elder & Company	3,500
Evans, MacCormack & Co., Inc	3,500
First Securities Corporation	3,500
Gerstley, Sunstein & Co	Sumpson,
Goodkind, Neufeld & Company, Inc	3,500 3,500
Granger & Company	3,500
Gruss & Co	3,500
Hardy & Co	3,500
Wm. P. Harper & Son & Co., Inc	3,500
Heller & Meyer	
T. C. Henderson & Co., Inc. Sixth & Grand, Des Moines 9, Iowa	3,500
Henry, Franc & Co	3,500
Hettleman & Co	3,500
Hill & Co	3,500
June S. Jones Co	3,500
John H. Kaplan & Co	3,500
Kaufman Bros. Co	3,500
Kerr & Bell	3,500
Kinsley & Adams	3,500
Richard E. Kohn & Co	3,500
Kormendi & Co., Inc	3,500
McDaniel Lewis & Co Jefferson Bldg., Greensboro, North Carolina	3,500
Lombard, Vitalis & Paganucci, Inc	3,500
MacNaughton-Greenawalt & Co Michigan Trust Bldg., Grand Rapids 2, Michigan	3,500
The Marshall Company Marine Plaza,	SON THE REAL PROPERTY.
111 E. Wisconsin Avenue, Milwaukee 2, Wisconsin	3,500
Mason & Co	3,500
Mason & Lee, Inc Church at Eighth Street, Lynchburg, Virginia	3,500
McJunkin, Patton & Co	3,500
C. S. McKee & Company, Inc	3,500
McLean & Company, Inc	3,500
McMaster Hutchinson & Co	3,500
Mid-Continent Securities Company, Inc Central Bldg., Wichita 2, Kansas	3,500
Nauman, McFawn & Co Ford Bldg., Detroit 26, Michigan	3,500
Norris & Hirshberg, Inc	3,500
Paul J. Nowland & Co	0 700
Wilmington, Delaware 19899	3,500

	Name of Underwriter	Address of Underwriter	Number of Shares to be Purchased
ı	Nugent & Igoe	592 Main Street, East Orange, New Jersey	3,500
١		Mills Bldg., San Francisco 4, California	3,500
ı		60 Wall Street, New York, N. Y. 10005	3,500
ı		Davenport Bank Bldg., Davenport, Iowa	3,500
ı		1518 Locust Street, Philadelphia 2, Pennsylvania	3,500
ı	Rankin & Co	53 Forsyth St. N.W., Atlanta, Georgia 30303	3,500
ı		40 Wall Street, New York 5, N. Y.	3,500
ı		1010 Euclid Avenue, Cleveland 15, Ohio	3,500
		Western Federal Bldg., Seventeenth at California, Denver 2, Colorado	Fall with
١	Scharff & Jones, Inc		3,500
ı		140 Carondelet Street, New Orleans 12, Louisiana	3,500
ı		Hibernia Bldg., New Orleans 12, Louisiana	3,500
١		111 Pearl Street, N.W., Grand Rapids 2, Michigan	
ı		539 Penobscot Bldg., Detroit 26, Michigan	3,500
ı		115 Broadway, New York 6, N. Y.	3,500
ı		39 Broadway, New York 6, N. Y.	3,500
ı		439 North Bedford Drive, Beverly Hills, California	
ı		105 South La Salle Street, Chicago 3, Illinois	3,500
ı		105 South La Salle Street, Chicago 3, Illinois	3,500
ı		506 Olive Street, St. Louis, Missouri 63101	3,500
		Fidelity Bldg., Baltimore 1, Maryland	3,500
ı	F. J. Winckler Co	1966 Penobscot Bldg., Detroit 26, Michigan	3,500
١		1115 First National Bank Bldg., Minneapolis 2, Minnesota	3,500
	Wyllie and Thornhill, Inc	204 East Market Street, Charlottesville, Virginia	3,500
	F. S. Yantis & Co. Incorporated	35 South La Salle Street, Chicago 3, Illinois	3,500
ı	York & Co	235 Montgomery Street, San Francisco 4, California	3,500

In the Purchase Contract the Underwriters have agreed to use their best efforts to offer the Common Stock in a manner to encourage the widest distribution of the shares to the American public. The text of the provision of the Purchase Contract setting forth such agreement of the Underwriters is quoted below. In such text, the term "Representatives" refers to the Underwriters named on the cover of this Prospectus, and the term "Selected Dealers" refers to members of the National Association of Securities Dealers, Inc., selected by the Representatives, to whom certain of the shares to be purchased by the Underwriters will be sold by the Underwriters for resale to the public:

"The Underwriters agree that they will use their best efforts to offer the Shares in a manner to encourage the widest distribution to the American public. In this connection, each Underwriter agrees that in filling orders for Shares retained by it for direct sale (i.e. Shares other than those reserved by the Representatives for sales for the account of such Underwriter to Selected Dealers or others), it will first make allotments of not in excess of 50 Shares, and in no event will it make allotments in excess of 100 Shares unless by such limitation of allotments it would be unable to dispose promptly of all such retained Shares. It is understood that no Underwriter shall be deemed to be unable to dispose promptly of its retained Shares and thereby be permitted to make allotments in excess of 100 Shares unless such Underwriter shall have first notified the Representatives and

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The Common Stock offered by the several Underwriters is offered subject to prior sale and when, as and if issued by the Corporation and accepted by the Underwriters, and subject to the approval of certain legal matters by their counsel, Messrs. Brown, Wood, Fuller, Caldwell & Ivey, and by counsel for the Corporation, Allen E. Throop, Esq., and Messrs. Wilmer, Cutler & Pickering, and the Underwriters reserve the right to withdraw, cancel or modify such offer and to reject orders in whole or in part.

The Representatives of the Underwriters have advised the Corporation that sales to certain dealers may be made at a concession of not in excess of the per share.

The Corporation has agreed to indemnify the Underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

# CARRIER SUBSCRIPTION MATTERS

The FCC has reserved the right, by means of a specific reservation in the authorizations issued to carriers, to allocate stock among the authorized carriers in the event of an oversubscription of the stock reserved for sale to such carriers. By letter dated April 30, 1964, however, the FCC has informed the Corporation that it will not make any allocation of stock pursuant to this reservation, provided the Corporation allocates the stock in the manner and to the extent set forth below. The letter also stated that, in view of the FCC's authority under Section 304(f) of the Act to require out authorized carrier to sell shares of the Corporation to another authorized carrier, nothing contained in the allocation formula should be construed to limit or restrict in any way the right of any authorized carrier to apply to the FCC for relief pursuant to the provisions of the aforementioned Section nor from obtaining relief pursuant to any action of the FCC instituted in accordance therewith.

In the event that the total number of shares subscribed for by all authorized carriers exceeds the number of shares (5,000,000) reserved for offering to such carriers, the reserved shares will be allocated among the subscribing carriers on the following basis (with adjustment of odd amounts, as the Corporation may determine to a multiple of 100 shares):

- 1. If there are two or more subscriptions each for more than 50% of the reserved shares, each such subscription shall be reduced to 50% of the reserved shares.
- 2. If there is a single subscription for more than 50% of the reserved shares, such subscription shall be reduced until it equals 50% of the reserved shares or until the amount of oversubscription is eliminated, whichever occurs first.

- 3. If no subscription is for more than 50% of the reserved shares, or if an oversubscription remains after reduction is made as provided for in paragraph 1 or 2 above, then all subscriptions for more than 5,000 shares (including the remainder of any subscriptions reduced to 50% of the reserved shares, as hereinabove provided) shall be reduced *pro rata*, on the basis of the amount by which each such subscription exceeds 5,000 shares, until the amount of oversubscription is eliminated.
- 4. In no event shall the above formula be applied to any subscription for 5,000 or less shares or to reduce any subscription below 5,000 shares.
- 5. For the purpose of this formula, subscriptions of affiliated authorized carriers shall be treated as one combined subscription. An authorized carrier will be considered affiliated with another authorized carrier if it directly, or indirectly through one or more intermediaries, controls, or is controlled by, such other carrier or is under common control with such other carrier. In determining whether authorized carriers are affiliated, the Corporation will rely upon advice received from the Federal Communications Commission.
- 6. When a reduction is made in a combined subscription consisting of subscriptions of two or more affiliated carriers, the reduction shall be applied *pro rata* among the respective constituent subscriptions of such affiliated carriers, notwithstanding the fact that any such constituent subscription is for 5,000 or less shares or would be reduced below 5,000 shares, but subject to adjustment of odd amounts to a multiple of 100 shares.

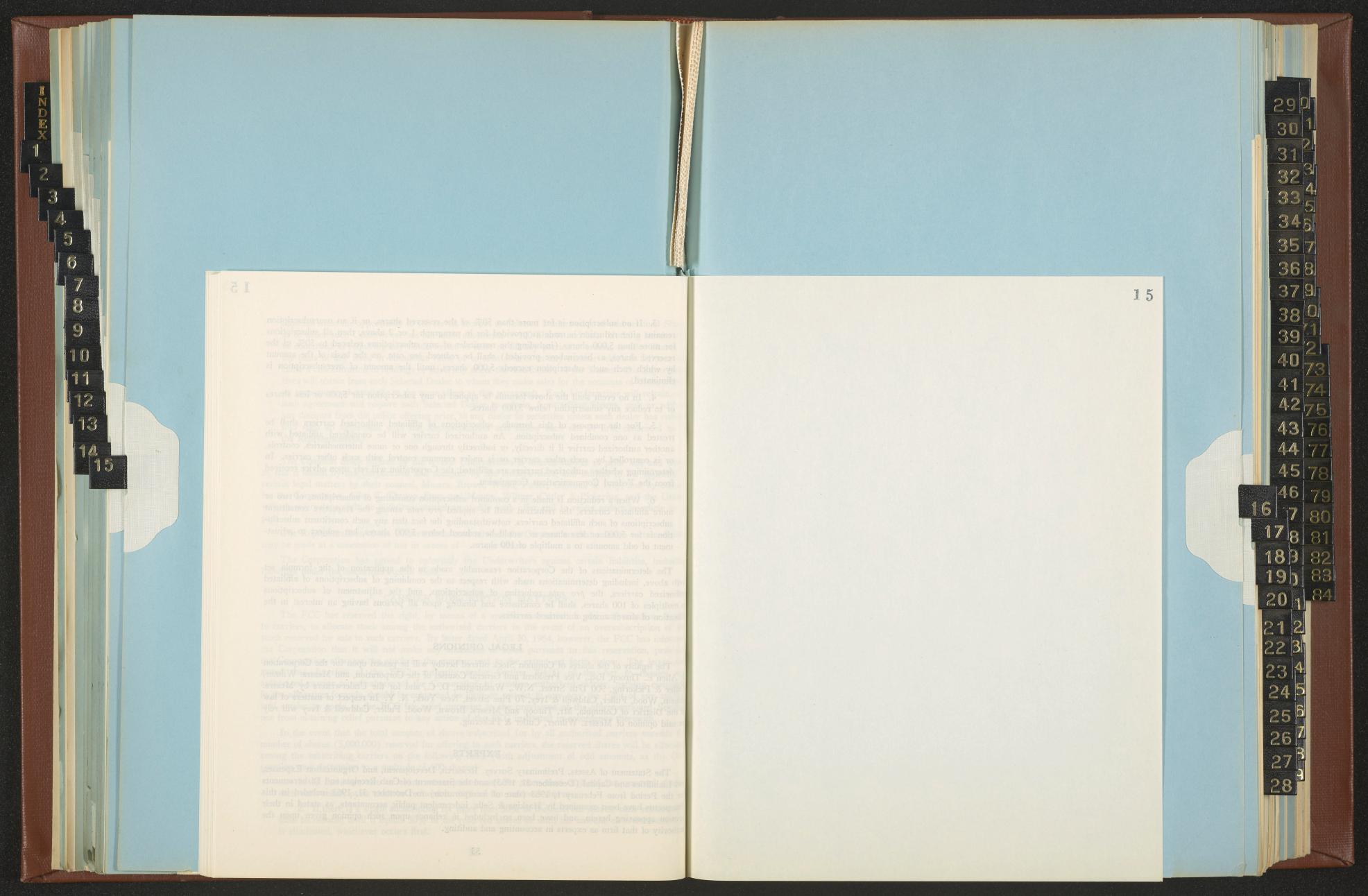
The determinations of the Corporation reasonably made in the application of the formula set forth above, including determinations made with respect to the combining of subscriptions of affiliated authorized carriers, the *pro rata* reduction of subscriptions, and the adjustment of subscriptions to multiples of 100 shares, shall be conclusive and binding upon all persons having an interest in the allocation of shares among authorized carriers.

#### LEGAL OPINIONS

The legality of the shares of Common Stock offered hereby will be passed upon for the Corporation by Allen E. Throop, Esq., Vice President and General Counsel of the Corporation, and Messrs. Wilmer, Cutler & Pickering, 900 17th Street, N.W., Washington, D. C., and for the Underwriters by Messrs. Brown, Wood, Fuller, Caldwell & Ivey, 70 Pine Street, New York, N. Y. In respect of matters of law of the District of Columbia, Mr. Throop and Messrs. Brown, Wood, Fuller, Caldwell & Ivey will rely a said opinion of Messrs. Wilmer, Cutler & Pickering.

## **EXPERTS**

The Statement of Assets, Preliminary Survey, Research, Development, and Organization Expenses, and Liabilities and Capital (December 31, 1963) and the Statement of Cash Receipts and Disbursements for the Period from February 1, 1963 (date of incorporation) to December 31, 1963 included in this Prospectus have been examined by Haskins & Sells, independent public accountants, as stated in their opinion appearing herein, and have been so included in reliance upon such opinion given upon the authority of that firm as experts in accounting and auditing.



10,000,000 Shares

# Communications Satellite Corporation

Common Stock (without par value)

The Corporation is not an agency or establishment of the United States Government.

In conformity with the Communications Satellite Act of 1962, 50% of the shares of Common Stock to which this Prospectus relates were reserved for subscription by communications common carriers authorized by the Federal Communications Commission to own stock of the Corporation. As of the close of business on June 1, 1964, there were in effect subscriptions of authorized carriers, revocable until accepted by the Corporation, for all the reserved shares. The Underwriters are purchasing from the Corporation for sale to the public the 5,000,000 unreserved shares. See "Offering of Common Stock".

There is at present no market for the Common Stock of the Corporation. The New York, Midwest and Pacific Coast Stock Exchanges have approved the listing of the Common Stock on such Exchanges, subject to certain conditions. See "Description of Common Stock".

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION NOR HAS THE COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

tiscommunications); and (ii) socia entities will sha	Offering Price	Underwriting Discount	Proceeds to Corporation*
Per Share: Public (5,000,000 shares) Authorized Carriers (5,000,000 shares)	\$20 \$20	\$.80 None	\$19.20 \$20
Total:	\$200,000,000	\$4,000,000	\$196,000,000

\* Before deducting expenses payable by the Corporation estimated at \$650,000.

Merrill Lynch, Pierce, Fenner & Smith Incorporated

Blyth & Co., Inc.

The First Boston Corporation Kidder, Peabody & Co.

Kuhn, Loeb & Co.

Lazard Frères & Co.
Lehman Brothers

Carl M. Loeb, Rhoades & Co.
Paine, Webber, Jackson & Curtis

White, Weld & Co.
Incorporated

Dean Witter & Co.

June 2, 1964.

No person is authorized to give any information or to make any representations not contained in this Prospectus, and any information or representation not contained herein must not be relied upon as having been authorized by the Corporation or by any Underwriter. This Prospectus does not constitute an offer of Common Stock by any person in any State or other jurisdiction to any person to whom it is unlawful to make such offer in such State or other jurisdiction, or an offer by the Corporation or any Underwriter to sell Common Stock to any person ineligible under the Communications Satellite Act of 1962 or the Articles of Incorporation of the Corporation to own shares of Common Stock of the Corporation.

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IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVERALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE COMMON STOCK AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH TRANSACTIONS MAY BE EFFECTED ON THE NEW YORK, MIDWEST OR PACIFIC COAST STOCK EXCHANGES OR IN THE OVER-THE-COUNTER MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

#### THE CORPORATION

Communications Satellite Corporation (the Corporation) was incorporated under District of Columbia law on February 1, 1963, as authorized by the Communications Satellite Act of 1962 (the Act). The Act states that it is the policy of the United States to establish, in cooperation with other countries, as expeditiously as practicable, a commercial communications satellite system, as part of an improved global communications network, and that United States participation in the system shall be in the form of a private corporation, subject to appropriate Government regulation. The Corporation has been created in pursuance of such national policy, but the Corporation is not an agency or establishment of the United States Government. The United States Government has not guaranteed funds invested in the stock of the Corporation, the payment of dividends on shares of such stock, or the profitability of the venture in which the Corporation proposes to engage.

In accordance with the Act, the Corporation plans to establish and operate a global commercial communications satellite system in cooperation with telecommunications entities in other countries, certain of which are agencies of foreign governments. Such a system would use satellites placed in orbit around the earth to relay telecommunications between terminal stations in the United States and in other countries. Terminal stations in the United States would be connected with communications systems owned and operated by common carriers that provide telephone and other telecommunications service to the public. Terminal stations in other countries would be connected with communications systems that provide such service there.

It is expected that (i) telecommunications entities in other countries will provide and operate terminal stations in such countries (without which there cannot be a satellite system for international telecommunications), and (ii) such entities will share with the Corporation the costs of establishing the space segment of the system (comprising the satellites and the command and control facilities on earth), which would be jointly owned by the Corporation and such entities in proportion to their respective investments. It is contemplated that equitable allocations of the communications capacity of the space segment would be made to such joint owners and others. The Corporation would utilize its allocation to furnish satellite channels for hire to United States communications common carriers and other authorized users. It is expected that the charges made to United States carriers for use of such channels would be a principal source of the Corporation's revenue. Arrangements with telecommunications entities in other countries have not yet been made. The Corporation intends to proceed with its program for the establishment of the system while such arrangements are being negotiated. See "International Arrangements for System".

The Act embodies a comprehensive plan for the conduct of the business and affairs of the Corporation. It includes provisions governing the Corporation with respect to matters that, in the case of other communications common carriers in the United States, are not ordinarily subject to Government supervision or control. The Act defines the powers of the Corporation and the relationships of the Corporation to the President of the United States and various agencies of the United States Government which have responsibilities in carrying out the purposes of the Act. Under the provisions of the Act, the President of the United States has approved the Corporation's Articles of Incorporation, and he is directed by the Act, among other things, to exercise authority over the relationships of the Corporation with foreign governments and entities. The Act directs the Federal Communications Commission (the FCC) to exercise authority over certain aspects of the affairs of the Corporation, including the rates charged by it. See "Regulation".

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Provisions of the Act also govern the ownership of shares of Common Stock of the Corporation and the composition and manner of selection of its Board of Directors. Among other things, such provisions contemplate that up to half the total number of shares of Common Stock of the Corporation is to be owned by United States communications common carriers, and direct that, effective upon completion of the first meeting of shareholders, the Board of Directors shall consist of six directors elected by those shareholders which are communications common carriers, six directors elected by other shareholders and three directors appointed by the President of the United States with the advice and consent of the Senate. See "Management" and "Description of Common Stock—Voting Rights". In the Act, Congress expressly has reserved the right to repeal, alter or amend the Act at any time.

# THE VENTURE AND ITS RISKS

The Corporation proposes to engage solely in operations based on recent developments in space and communications technology. Careful consideration should be given to the matters referred to in the following summary, as well as to the information set forth elsewhere in this Prospectus.

- (1) Experimental communications satellites have been placed in orbit and operated in programs conducted by the United States Government and private United States firms (other than the Corporation); but the establishment of a communications satellite system, capable of providing commercially useful service, has never before been attempted.
- (2) Satellite systems of several different types are believed to be practicable for commercial purposes. To provide further information relevant to the selection of a type of system, the Corporation plans to conduct experiments and limited operations by means of a satellite to be launched by mid-1965. The program of the Corporation contemplates that the type of system to be established will not be determined before the latter part of 1965. It is anticipated that the system system will not be in full operation before the latter part of 1967. The dates referred to in this paragraph are approximations only, and every reference in this Prospectus to an anticipated date qualification that unforeseen developments may either delay or prevent the carrying out of the program.
- (3) It is anticipated that the Corporation will not have significant operating revenue until the system is in full operation. In view of the risks of the venture, the Corporation may not realize significant operating revenue for a period after full system operations commence, and the Corporation may operate at a loss for several years after commencement of full system operations. In view of such risks, the period during which operations are conducted at a loss may be even more extended. No dividends will be paid on the Common Stock for an indeterminate period.
- (4) A communications satellite system of any type requires rockets or other launch vehicles that will place the satellites in the intended orbit, and the costs of launch vehicles will represent a major element in the costs of establishing a communications satellite system. It is contemplated that satellites for the system will be launched by vehicles developed in United States defense and space programs. The reliability of such vehicles is being further improved, but the risk of launch vehicle failure is an important risk inherent in an attempt to establish a satellite system of any type.

Consequences of launch vehicle failure will include loss of the vehicle and of the satellites carried by the vehicle, and, if the failed vehicle causes injuries or damage, may also include liability therefor.

- (5) A communications satellite system of any type requires satellites which will remain operable for a considerable period. On the basis of information derived from experimental communications satellite programs, it is believed that satellite operating lifetimes of the duration necessary for a commercial system can be achieved, but the risk of early failure of satellites in orbit also is an important risk inherent in an attempt to establish a satellite system of any type. Failure of satellites in orbit may necessitate the launching of replacement satellites (involving additional launch vehicle costs) and may also cause interruption or suspension of service, with consequent loss of revenue.
- (6) Certain techniques and devices, not yet proved in actual operations, are regarded as important to the commercial feasibility of certain types of satellite systems, or as important to highly efficient operations of any type of system. These include the launching of several communications satellites by a single launch vehicle (of importance to the commercial feasibility of a system consisting of a large number of satellites); techniques or devices to enable more than two terminal stations to communicate simultaneously via a single satellite without significant reduction in the satellite's communication capacity; and devices to control the attitude of satellites in orbit so that signals emitted by the satellite are directed toward the earth only.
- (7) The demand for international telecommunications services (particularly telephone service) has increased continuously since the end of World War II, and, if the demand continues to increase, additional facilities of some kind will be required within the next few years to assure adequate telecommunications service between North America and Western Europe (commercially the most important route at present) and over certain other routes. The program of the Corporation to establish, in cooperation with other telecommunications entities, a commercial communications satellite system is based on the belief that the demand for international telecommunications services will continue to grow and on the expectation that the satellite system, in competition with facilities operated by others, will serve an important and increasing volume of international telecommunications traffic. It is expected that, in the early years of system operations, revenues from the use of satellite channels for telephone service will constitute by far the most important element in total revenues from system operations, and that revenues from television transmissions will not be significant in terms of such total revenues.
- (8) The satellite system will compete with submarine telephone cable systems between North America and Western Europe and on certain other routes, and with high-frequency radio facilities generally. Such cable systems and radio facilities are owned by certain of the United States carriers and telecommunications entities in other countries which are prospective users of the satellite system. American Telephone and Telegraph Company (AT&T) is the principal United States owner of submarine telephone cable systems. The submarine cable systems with which the satellite system will compete may include cable systems of greatly increased efficiency now under development by AT&T and others. AT&T has stated an intention, subject to certain conditions, to lease satellite system channels of commercial quality, and other United States carriers have indicated an interest in so doing; but the Corporation has not obtained firm commitments therefor. The competitive position of the Corporation will depend on its ability to develop and operate a satellite system that will provide

(9) The venture depends on the cooperation of telecommunications entities in other countries. Although many of such entities have indicated interest in the venture, the Corporation has not obtained the commitments of any such entities to provide the foreign terminal stations essential to the operations of a satellite system, or to join with the Corporation in the ownership (and payment of the costs) of the space segment of the system, or to use the system.

(10) The negotiation and carrying out of international arrangements for the system may be impeded or prevented by international political developments that are not directly related to the system. Moreover, the system may not be designed to operate in spite of intentional interference (e.g., jamming) and, if the operations of the system are purposely interfered with by a foreign government, elimination of the interference would depend on action by the United States Government (or other interested governments).

(11) Other countries may have or may acquire the ability to establish and operate a satellite system which would compete with the system the Corporation proposes to establish. Governments of certain foreign countries from time to time have announced that communications satellite development activities are being pursued or considered in such countries; but the Corporation does not know of any plan for the establishment by any other country of a communications satellite system which would compete with the system contemplated by the program of the Corporation. Under provisions of law presently in effect, any such competing system could not provide telecommunications service between the United States and overseas points without authorization by the FCC.

(12) Under the provisions of the Act, the activities in which the Corporation has authority to engage are, in general, those related or incidental to the development, ownership and operation of a commercial communications satellite system as defined in the Act. In the event that future technological developments provide a basis for new types of communications systems which do not use earth satellites and satellite terminal stations on the earth's surface, the Corporation might be unable to take advantage of such developments without appropriate legislation. Such legislation might not necessarily be required by other enterprises.

(13) The Corporation has public responsibilities under the Act, as well as responsibilities to its shareholders. Among other things, in the interests of national policy, the Corporation may be required to provide certain communications services to particular foreign points in circumstances in which it would be contrary to the business judgment of the Corporation to do so.

(14) The Corporation does not presently hold any patent rights. The manufacture and operation of the equipment and facilities required for a commercial communications satellite system may involve the use of inventions which are or may be subject to patent rights held by others. However, it is believed that access to such patent rights, or to satisfactory alternatives, should be obtainable on reasonable terms. It is expected that although equipment and facilities for the system will generally be procured on a competitive basis, some items may be available only from a single source of supply because of know-how, production capacity or other unique qualifications possessed by such source. It is believed that access to such single sources of supply, or to satisfactory alternatives, should also be obtainable on reasonable terms.

## OFFERING OF COMMON STOCK

Offering to Authorized Carriers

In conformity with the Act and the Corporation's Articles of Incorporation, 50% of the 10,000,000 shares of Common Stock to which this Prospectus relates were reserved until the close of business on May 26, 1964, for subscription by communications common carriers authorized by the FCC to own stock of the Corporation (authorized carriers). As of that time, 163 authorized carriers had submitted subscriptions, revocable until accepted by the Corporation, for an aggregate of 6,354,250 shares of Common Stock. There are set forth below, as of the close of business on June 1, 1964, (a) the name of each authorized carrier whose subscription relates to 5% or more of the 5,000,000 reserved shares and the number of shares to which the subscriptions of authorized carriers (other than those named) relate. The number of shares shown opposite American Telephone and Telegraph Company is the number of shares subscribed for by it, reduced by the application of the allocation formula set forth under "Carrier Subscription Matters".

Name	Number of Shares
American Telephone and Telegraph Company	2,895,750 shares
International Telephone and Telegraph Corporation	1,050,000 shares
General Telephone & Electronics Corporation	350,000 shares
RCA Communications, Inc	250,000 shares
Other Authorized Carriers	454,250 shares
	American Telephone and Telegraph Company International Telephone and Telegraph Corporation General Telephone & Electronics Corporation RCA Communications, Inc.

Total..... 5,000,000 shares

The subscriptions referred to above are subject to revocation (in full but not in part) at any time prior to the acceptance thereof by the Corporation after the effectiveness of the Registration Statement covering the shares of Common Stock to which this Prospectus relates (the Registration Statement).

Upon (i) the issuance and sale to authorized carriers of the number of shares of Common Stock to which their respective subscriptions relate (adjusted, in the case of AT&T, as set forth above), and (ii) the issuance and sale to the Underwriters of 5,000,000 shares of Common Stock pursuant to the Purchase Contract referred to below, AT&T will own shares constituting approximately 29%, and International Telephone and Telegraph Corporation (ITT) will own shares constituting 10.5%, of the total number of shares of Common Stock then issued and outstanding, and no other person will own of record or, to the knowledge of the Corporation, beneficially but not of record, shares constituting more than 10% of the total number of shares then issued and outstanding. The Corporation may enter into transactions with AT&T and/or ITT or companies controlled by them, respectively. See "Experimental Operational Satellites" and "System Development".

The obligations of authorized carriers to purchase shares subscribed for by them are subject to certain conditions, including the conditions that (a) the Registration Statement shall have become and shall remain effective, and (b) the sum of the aggregate purchase price for shares covered by accepted subscriptions of authorized carriers and the net proceeds (after underwriting discount but before expenses) received by the Corporation for shares purchased by the Underwriters under the Purchase Contract referred to below shall amount to not less than \$190,000,000. The subscription of each authorized carrier which has subscribed for shares includes the agreement of such carrier that, unless compelled by the FCC in accordance with the provisions of the Act to transfer shares to another carrier, it will not, during a period of 60 days after the delivery to it of the shares of Common Stock purchased by it pursuant to the offering made by this Prospectus, sell or otherwise dispose of such shares otherwise

than to an authorized carrier affiliated with it which is a party to a similar agreement with respect to the sale or other disposition of such shares during such 60-day period.

On May 28, 1964, the FCC issued a statement, the text of which appears under "Carrier Subscription Matters", advising authorized carriers that authorizations to own shares of Common Stock of the Corporation granted by FCC presuppose that shares acquired by authorized carriers will be acquired for investment purposes and not for speculative purposes.

## Offering to Public

The Underwriters have agreed to purchase from the Corporation for sale to the public the 5,000,000 unreserved shares. In the Purchase Contract between the Underwriters and the Corporation, the Underwriters have agreed to use their best efforts to offer the Common Stock in a manner to encourage the widest distribution of the shares to the American public. In addition to offering a portion of the shares directly to the public, the Underwriters will offer shares to over 800 dealers for resale to the public.

Underwriters and dealers will not be required to accept or fill all orders received. In the Purchase Contract the Underwriters have agreed, except under certain circumstances, in making sales to persons other than dealers, to limit the number of shares allotted to any purchaser and to require each dealer to enter into an agreement to the same effect covering the shares sold by such dealer. The text of the provision of the Purchase Contract stating such agreement of the Underwriters is set forth under "Underwriting".

At the request of the Corporation, an arrangement has been made whereby up to 25 shares of Common Stock will be allotted at the public offering price to any employee of the Corporation who may enter an order with Merrill Lynch, Pierce, Fenner & Smith Incorporated. The maximum number of shares purchasable under this arrangement is approximately 2,000 shares.

The decisions of authorized carriers to purchase shares may be based on business considerations not applicable to purchasers other than carriers.

## CAPITALIZATION

The following table sets forth the capitalization of the Corporation as of June 1, 1964 and as adjusted to give effect to the sale of 5,000,000 shares of Common Stock to authorized carriers, the sale of 5,000,000 such shares to the Underwriters and the application of a portion of the proceeds of such sales to the payment of bank loans of the Corporation, as described under "Application of Proceeds":

Title of Class	Authorized	Outstanding	Adjusted
Bank loans due June 30, 1964	loateen surgemen en	\$1,850,000	None
Common Stock, without par value*	10,000,100 shs.	14 shs.	10,000,014 shs.

<sup>\*</sup> The shares of Common Stock are issuable in two Series, designated Series I and Series II. As more fully set forth under "Description of Common Stock", and subject to the provisions of the Act and the Articles of Incorporation of the Corporation referred to therein, Series I shares are issuable to the public and Series II shares are issuable to communications common carriers authorized by the FCC to own stock of the Corporation.

# APPLICATION OF PROCEEDS

The net proceeds from the sale of the 10,000,000 shares of Common Stock are estimated at approximately \$195,350,000, after deducting estimated expenses. Approximately \$1,903,000 of such net proceeds will be applied to the payment of bank loans of the Corporation. The balance of such net proceeds (\$193,447,000) will be applied to pay the costs and expenses to be incurred by the Corporation in carrying out its program over the next few years for the development and establishment of a commercial communications satellite system, and for related purposes. See "Program of the Corporation". It is contemplated

that funds not at the time required for such purposes will be invested in obligations of the United States Government or in other interest-bearing obligations or deposits.

As indicated under "Program of the Corporation", the range of the costs which it is estimated will be incurred in carrying out the program of the Corporation is from \$190,000,000 to \$230,000,000. It is believed that the net proceeds from the sale of Common Stock, together with interest income and possible revenues from the operations of the experimental operational satellite proposed to be launched in 1965, will provide an amount sufficient to pay substantially all of the program costs which will be required to be paid by the Corporation. However, in view of the risks associated with the program and the possibility of changes in the program (including such changes as might result from modification of the program so as to satisfy certain requirements of the National Communications System), the actual costs may considerably exceed present estimates. See "National Communications System Program". The Corporation has not made any arrangements to provide such additional funds as may be required.

It is expected that telecommunications entities in other countries may become joint owners with the Corporation of the space segment (comprising the satellites and the command and control facilities) of the communications satellite system and may provide part of the capital necessary to pay the costs of establishing the space segment. The Corporation has not obtained the commitment of any such entity to bear any part of such costs. Other than as indicated above, the Corporation at present has no plans for the use of any of the net proceeds of this financing which, because of the sharing of costs by the telecommunications entities in other countries, or for any other reasons, may not be required by it to defray the costs of the program.

## SATELLITE COMMUNICATIONS

# Nature of Satellite Communications

A communications satellite system would consist of satellites placed in orbit around the earth for the purpose of relaying telecommunications between terminal stations at different places on the earth's surface. Telecommunications which would be so relayed would include telephone messages, television signals, and "record traffic" of various types (message and other telegraph traffic, teleprinter exchange traffic (telex), and facsimile, photogram and data transmissions). Terminal stations would be operationally connected with telephone systems and other telecommunications facilities. Telecommunications would be transmitted (i) from the place of origin, through telephone lines or other facilities, to a terminal station, (ii) from the terminal station to a satellite in orbit, (iii) from the satellite to another terminal station, and (iv) from the receiving terminal station, through telephone lines or other facilities, to the place of destination.

Communication by satellite between two terminal stations is possible only when a satellite is above the horizon (is "visible") at both terminal stations. If the satellite's orbit carries it below the horizon of one of the terminal stations, communication between the stations will not be possible until the satellite again becomes visible to both stations or another satellite becomes visible to both stations. In such a case, to enable continuous communication between two terminal stations, a number of satellites would be necessary, so that before the last satellite visible to both terminal stations moves below the horizon of one of the stations, at least one other satellite will have become visible to both stations.

The number of satellites necessary to enable continuous communication between a pair of terminal stations depends primarily on the altitude and inclination of the orbits from the plane of the Equator and on whether the spacings between the satellites are controlled. Fewer satellites would be necessary at any

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altitude than would be necessary in an orbit of the same inclination at a lower altitude. The spacings between satellites at the same altitude will not be uniform unless such spacings are established, after the satellites are in orbit, by use of "position control" equipment included in the satellites. A system of satellites the spacings between which are controlled during orbit (a controlled system) need include fewer satellites than a system of satellites at the same altitude which are not subject to such control (a random system). Altitudes within the range of from 5,000 to 10,000 miles are generally proposed for a system (controlled or random) which is to consist of a number of satellites that in turn disappear below the horizon and in turn become visible again. Satellites in orbit at such altitudes (medium altitudes) could be used for communication between terminal stations over transoceanic distances.

The orbital period of a satellite and the length of the time that a satellite would be above the horizon of a particular terminal station increase as the altitude of the orbit increases. In particular, if the velocity of a satellite in orbit above the Equator at an altitude of 22,300 miles is effectively controlled, the orbital period of such a satellite would be 24 hours—an orbital period synchronized with the rotation of the earth. A satellite in such an orbit (synchronous orbit) would be visible to terminal stations within an area including approximately one third of the earth's surface and would be visible to terminal stations within that area during its entire orbital period of 24 hours. To an observer at such a terminal station, the satellite would appear to remain stationary in the sky. A satellite in such a synchronous orbit could be used at any time for communication between terminal stations within that area located up to 10,000 miles apart. The orbit of a satellite at an altitude of 22,300 miles, which deviates slightly from the plane of the Equator, is also referred to in this Prospectus as a synchronous orbit. The usefulness for communications of a satellite in such an orbit would be substantially the same as that of a satellite in a true "stationary" orbit, exactly above the Equator. A true "stationary" orbit (or an orbit of such slight deviation) has not yet been achieved.

The quality of telephone communication by means of a satellite in synchronous orbit would be reduced by reason of the length of the time (approximately three-tenths of a second) required for transmission of the signal to the satellite and back to earth (a delay which tends to interfere with the normal rhythms of conversation), and by the inter-acting effects of echo suppressors of existing types which must be used. There is not yet sufficient experience to indicate clearly whether or not telephone service by means of satellites in synchronous orbit will be of a quality that is generally acceptable to the public.

The principal components of any satellite which relays signals between terminal stations are (i) a receiver and related antenna, for the reception of signals from terminal stations, (ii) a transmitter and related antenna, to amplify and return signals to terminal stations, and (iii) a system to provide electrical energy for the satellite's receiver and transmitter. The principal components of a terminal station for any satellite system are, in addition to a source of electric power, a transmitter, a receiver, and at least one antenna. The orbital configuration of a satellite system greatly influences the nature of additional equipment which satellites and terminal stations must include. Placing and maintaining a satellite in synchronous orbit require that the satellite itself have position control equipment, to help achieve the synchronous orbit in the first instance and to overcome the effects of drift from such orbit. Satellites in a controlled medium altitude system also must have position control equipment, to establish the desired spacings between the satellites. Satellites in a random system need not include such equipment. To conduct the same operations, a terminal station for a medium altitude system must include twice the number of antennas required in a terminal station for a synchronous satellite system.

Command and control facilities (including computers and other equipment for tracking, guidance and control of satellites) also are necessary to satellite system operations.

### Launching of Satellites

Rockets or other launch vehicles capable of placing objects of substantial weight in orbit are essential to a communications satellite system. Such vehicles have been developed in the United States in recent years in connection with United States Government space and defense programs. The reliability of such vehicles has been improved in the course of such programs, and agencies of the Government and others engaged therein are carrying out activities intended to increase launch vehicle reliability to a further degree; but the risk that one or more launch vehicles will fail to place satellites in a planned orbit may continue to be a significant factor throughout the period during which the Corporation proposes to create a commercial satellite system.

Costs of launch vehicles, and related vehicle launching expenses, are a major part of the aggregate cost of creating any satellite system. A medium altitude system may not be commercially feasible unless several satellites can be placed in the intended orbit by a single launch vehicle. In experiments conducted by agencies of the United States Government, as many as five objects have been placed in orbit by a single launch vehicle. Such objects were not communications satellites, and the orbits achieved were orbits at substantially lower altitudes than those contemplated for the satellites of a medium altitude system. The techniques necessary for a "multiple launch" of communications satellites would be the same as those successfully employed in such experiments; but no attempt has thus far been made in the United States to place more than one communications satellite in orbit by use of a single launch vehicle.

#### Satellite Lifetime

Satellites in orbit are subject to being damaged by radiation, by collision with natural objects and by other events in space. Damage resulting from any of such causes, or a failure of satellite components for other reasons, may interrupt or terminate the operation of the satellite. Certain of the experimental satellites launched in the United States experienced damage or failure of components within relatively short times after being placed in orbit. Three of the experimental satellites have operated for periods of nine months or longer (the longest such period being approximately 16 months). Certain of the experimental satellites launched in the United States are still in operation. See "Experimental Communications Satellites".

Failure of a satellite in orbit may impair or prevent communication service between the terminal stations to which the satellite is visible. In the case of a medium altitude system, the failure of a satellite is likely to result in interruptions of service during periods of predictable occurrence and length, corresponding to the periods during which the inoperative satellite is the only satellite visible to the terminal stations. Such periods of interruption will be longer if the system is a controlled system than if the system is a random system. If communication between two terminal stations is provided by a single synchronous satellite and there is not a "standby" satellite in orbit, failure of the satellite will prevent communication at any time until the satellite is replaced. Costs of replacing a satellite that has failed in orbit include the costs of the replacement satellite, the costs of a launch vehicle and related vehicle launching expenses. For a commercial system, the impairment or suspension of service resulting from satellite failure may also result in loss of substantial revenue until service can be restored by the successful launching of the replacement satellite.

#### Experimental Communications Satellites

Experimental communications satellites have been developed and placed in orbit in programs conducted by agencies of the United States Government and by private American companies other than the

# Experimental Communications Satellites (United States)

			The Parties of the Pa	- Duccos)
Name(a)	Launch Date	Altitude of Initial Orbit (statute miles)	Operating Lifetime of Telecommunications System	Telecommunications Transmissions
Score	December 18, 1958	115 to 914	13 days (design life)	Voice and telegraph, including delayed signal repetition and rebroadcast of recorded mes- sage.
Courier I-A	August 18, 1960	Failed to orbit (launch vehicle exploded)	in the intended from a State of Control of C	versi satellites can be placed rised by accurers of the United
Courier I-B	October 4, 1960	586 to 767	17 days	Voice, telegraph and telephoto, including voice transmission to Puerto Rico.
Telstar I	July 10, 1962	593 to 3,503	199 days(b)	Television, voice, telegraph, data and telephoto, including trans- oceanic transmissions.
Relay I	December 13, 1962	819 to 4,612	484 days(c)(d)	Television, voice, telegraph, data and telephoto, including transmissions between the U. S. and Western Europe and South America, and between the U. S. and Japan.
Syncom I	February 13, 1963	21,268 to 22,974	Communication lost at injection into orbit.	nord of beside and value same
Telstar II	May 7, 1963	604 to 6,713	359 days(d)(e)	Similar to Telstar I.
Syncom II	July 26, 1963	22,240 to 22,247 (orbit very nearly circular and synchro- nous)	305 days(d)	Voice, telegraph, data and telephoto, including transmissions between the U. S., Western Europe and Africa.
Relay II	January 21, 1964	1,325 to 4,600	127 days(d)	Similar to Relay I.

(a) Of the satellites referred to in the table, (i) Telstar I and Telstar II were designed and constructed by American Telephone (RCA) under contract with the National Aeronautics and Space Administration (NASA), (iii) Syncom I and Syncom II for Score was constructed by RCA for the Department of Defense, and (v) Courier IA and IB were constructed by Philo

(b) Exclusive of a 27-day interruption (attributed to damage caused by radiation) in the operating lifetime stated. Termination

(c) Exclusive of (i) a 20-day period, immediately following launch, during which malfunction in satellite components prevented system was inoperable.

(d) Computed to May 26, 1964, at which time the telecommunications system of the satellite was still operable.

(e) Exclusive of a 27-day interval during which the telecommunications system was inoperable for unknown reasons.

The experimental satellites Telstar I and II and Relay I and II have been used successfully for transmission of the principal kinds of telecommunications which a commercial system would serve over distances comparable to those which commercial service would require. The experimental satellite Syncom II has also been used successfully for the transmission over such distances of the principal kinds of telecommunications which commercial service would require, except that television signals transmitted through Syncom II have not been of commercial quality. In addition, the experimental satellite programs have provided much information relevant to the design of satellites for a commercial system.

The improvements in experimental satellites which are essential for the satellites of a commercial system are primarily those related to the achievement of reliability of components through careful selection and intensive testing. In addition, certain anticipated developments in components or techniques generally are regarded as important to communications satellite operations of highest efficiency, viz., (i) development of techniques which will enable a satellite to communicate simultaneously with more than two terminal stations without material reduction in the satellite's overall communication capacity, and (ii) development of devices which can be used to control the attitude of satellites for extended periods of time, so that signals emitted by the satellite are directed toward the earth only.

The terminal station facilities principally used in connection with the operation of the experimental satellites referred to in the table have been, in respect of facilities in the United States, experimental terminal stations constructed by communications common carriers or facilities of the United States Government, and, in respect of facilities outside the United States, experimental terminal stations constructed by foreign telecommunications entities, including such facilities in the United Kingdom, France, Italy, Brazil and Japan. Telecommunications entities in other foreign countries (including Canada and the Federal Republic of Germany) are engaged in the construction of terminal station facilities in such countries.

#### PROGRAM OF THE CORPORATION

#### Activities to Date

The Corporation has been engaged in various activities leading to the creation of a commercial communications satellite system. It has established its offices in leased premises in Washington, D. C. Technical and economic studies are being carried out by the staff of the Corporation and by firms under contract with the Corporation, including studies of factors affecting the design of a satellite system, studies with respect to potential telecommunications traffic which such a system might serve, and studies relating to the minimum specifications and characteristics of an initial communications satellite system. Expenses incurred in connection with these activities have been financed by bank borrowings.

# Summary of Program and Estimated Costs

The Board of Directors of the Corporation has approved a program for the development and establishment of a commercial communications satellite system. The principal elements of the Corporation's program, and the estimated costs of each element in the program, are summarized below. The cost estimates shown are approximations only, and, in view of various factors referred to below, the actual costs of the program as a whole, or of particular elements in the program, may considerably exceed such estimates. The estimates do not reflect such additional costs as would be involved if the program were modified to satisfy certain requirements of the National Communications System. See "National Communications System Program". The cost estimates in the summary do not include any amount covering the expenses to be incurred in maintaining an established system.

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Conduct of certain communications tests and limited operations by means of an experimental operational satellite proposed to be placed in synchronous orbit above the Atlantic Ocean in mid-1965..... \$ 14,000,000 - \$ 20,000,000

SYSTEM DEVELOPMENT

Preparation of satellite engineering designs and development of prototype satellites of various types, preparatory to a decision, proposed to be made in the latter part of 1965, as to whether the commercial satellite system will be a medium altitude system or a synchronous system ....

\$ 55,000,000 - \$ 65,000,000

Manufacture and placing in orbit of satellites constituting a commercial communications satellite system, to provide limited service estimated to begin in 1966 and to be in full operation in the latter Construction in the United States by mid-1966 of a command and

PROPOSED TERMINAL STATIONS

Construction by the Corporation of satellite terminal stations required in the United States\* \$ 17,000,000 - \$ 20,000,000

RESEARCH AND DEVELOPMENT AND ADMINISTRATION

Additional research and development and administrative activities . . \$ 20,000,000 - \$ 25,000,000

\* Contingent on matters referred to under "Proposed Terminal Stations".

The Corporation has entered into an agreement for the design and manufacture of the experimental operational satellites, and has received proposals for the preparation of the satellite engineering designs, referred to in the foregoing summary. Except with respect to the equipment and services to which such agreement and proposals relate, the cost estimates in the foregoing summary are not based upon bids to provide equipment or services. Such estimates are based on information furnished to the Corporation by the United States Government and United States firms which have engaged in satellite experiments and in other phases of space programs. The Corporation expects to invite at the appropriate time competitive bids or proposals for the equipment and services required by its program, and does not presently plan to manufacture itself any of such equipment. The actual costs of the program summarized above may vary considerably from estimated costs, depending upon the characteristics of the system, unforeseen factors affecting adversely launching costs or costs of components, and technological developments or other factors. In view of the risks of the venture, the taking of any particular step in the program may be delayed for extended periods beyond the approximate date for such step referred to in the summary above.

The program of the Corporation summarized above may be changed in material respects by reason of unforeseen developments. Whether or not any such development occurs, the program is also subject to change by the Board of Directors of the Corporation that will succeed the present Board. See "Management". Changes in the program may also be made by reason of modification of the program to satisfy certain requirements of the National Communications System or by reason of the nature

or terms of the international arrangements to be negotiated for the system. See "National Communications System Program" and "International Arrangements for System". The carrying out of any program for the establishment of a commercial communications satellite system is subject, among other things, to the continued effectiveness of the provisions of the Act which authorize the Corporation to carry out such a program, and to the authority of the agencies of the United States Government referred to under "Regulation".

Experimental Operational Satellites

The Corporation plans to conduct communications tests and to provide certain commercial communications services by means of a satellite to be placed in synchronous orbit over the Atlantic Ocean in mid-1965. The principal objectives of the program for such a satellite are to obtain information relevant to the selection and design of a commercial system (including information about public attitudes toward the time delays and echo suppression effects involved in telephone conversation via satellite in synchronous orbit) and also to provide experience in the conduct of operations. The particular satellite to be used in the program will be designed to provide up to 240 two-way telephone grade circuits between appropriately equipped terminal stations in North America and Western Europe. Such circuits could be used for telephone conversations, or for record traffic, or for the transmission of television signals. The capacity provided by one two-way telephone grade circuit is sufficient for the simultaneous transmission of 22 or more telegraph messages, depending on the terminal equipment used. The construction, launching and operation of the satellite are subject to the approval of the FCC. The Corporation has obtained such approval for the construction of the satellite, but has not yet made application for the other necessary approvals.

The Corporation has entered into an agreement with Hughes Aircraft Company, Culver City, California (Hughes Aircraft), for the design, manufacture, assembly and testing of two such satellites. for the manufacture of components for a third such satellite and for the performance of certain related services. The agreement provides for delivery of the first satellite in April, 1965, and for delivery of the second satellite later that year. Under the provisions of the agreement, the aggregate amount payable by the Corporation to Hughes Aircraft depends on whether the satellites are successfully implaced in orbit and, if successfully implaced, on the length of the period during which either of the two satellites is operable in accordance with certain operating standards specified in the agreement. Under such provisions, if neither satellite is successfully implaced in orbit, the aggregate amount payable by the Corporation to Hughes Aircraft would be \$7,885,000. If both satellites are successfully implaced, the minimum aggregate amount payable by the Corporation, whether or not either satellite is operable for any period, is \$6,335,000, and the maximum aggregate amount payable by the Corporation, which would be payable if each of the two satellites is operable for a period of 18 months or longer, would be \$10,835,000. The agreement also provides for additional payments by the Corporation to Hughes Aircraft in the event of the delivery of the first satellite in advance of the scheduled delivery date.

The Corporation expects to enter into an agreement with the National Aeronautics and Space Administration (NASA), an agency of the United States Government, for the furnishing to the Corporation by NASA of launch vehicles and launching services for two such satellites. The Act provides that NASA shall furnish launching services to the Corporation on a reimbursable basis. The Corporation has held preliminary discussions with NASA with respect to the furnishing by NASA of such launching services, but the terms of an agreement between the Corporation and NASA have not been determined.

It is expected that the vehicle to be used in the launching of each such satellite would be a Thor Delta rocket vehicle with three augmenting rockets attached. A total of 24 launchings of the Thor Delta rocket vehicle (without such augmenting rockets) has been attempted to date in connection with national

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space programs. Of such launching attempts, 22 were successful, including the launchings of the experimental satellites Syncom I and Syncom II. The launchings of Syncom I and Syncom II are the only launchings of the Thor Delta rocket vehicle to date for the purpose of placing an object into synchronous orbit. The Thor Delta rocket vehicle with such augmenting rockets has not been launched to date in national space programs.

The program of the Corporation contemplates that, in the event the first launch attempt fails or the first satellite is inoperable, an attempt will be made to launch the second satellite into synchronous orbit over the Atlantic Ocean. If the first launch is successful, it will then be determined whether to launch the second satellite into orbit over the Atlantic Ocean (to provide additional or stand-by capacity) or to launch it into orbit over the Pacific Ocean, or to hold it in reserve.

The Corporation is discussing with AT&T the terms of arrangements for the modification of AT&T's experimental terminal station facilities at Andover, Maine, and for the use of such facilities in the conduct of tests and operation of such satellites. Such arrangements and use will be subject to the approval of the FCC. It is expected that experimental terminal station facilities now existing or to be constructed in other countries will be used in the conduct of such tests and operations, but arrangements therefor have not yet been made. The Corporation proposes to offer to United States communication common carriers and other authorized users, for hire, channels of communication by means of the satellite in synchronous orbit above the Atlantic Ocean, between such terminal station in the United States and such terminal stations in Western Europe. AT&T has advised the FCC that it intends to seek FCC authorization to lease 100 circuits in the experimental operational satellite as soon as such circuits are commercially available; but the Corporation has not obtained the commitment of AT&T (or of any other carrier or entity) to lease any such circuits.

#### System Development

In December, 1963, the Corporation invited 15 United States firms to submit proposals for the preparation of engineering designs of satellites for a commercial system. In response to such invitation, proposals were submitted by (i) AT&T and Radio Corporation of America (RCA), jointly, (ii) Hughes Aircraft, (iii) Philco Corporation, and (iv) Space Technology Laboratories, Inc. (STL) in association with International Telephone and Telegraph Corporation (ITT). The AT&T-RCA proposal and the Philco Corporation proposal are each for the design of satellites for a medium altitude random system. The STL-ITT proposal is for the design of satellites for a medium altitude controlled system. The Hughes Aircraft proposal is for the design of satellites for a synchronous satellite system. The Corporation is negotiating with, and expects to enter into agreements with, AT&T-RCA and STL-ITT for the preparation of engineering designs on the basis of the proposals submitted by them, subject to arriving at mutually satisfactory terms of the proposed agreements and subject to compliance with regulations prescribed by the FCC, which require notification to and review by the FCC of such proposed agreements before they may be entered into. Each such agreement would provide for the completion of the design within a period of six months from the effective date of the agreement. In addition, the Corporation expects to enter into an agreement with Hughes Aircraft for the conduct of studies of synchronous satellite development which could improve the satellites now under development by Hughes Aircraft, as described under "Experimental Operational Satellites", for possible subsequent synchronous satellite use.

The program of the Corporation for the development of a global commercial satellite system contemplates that (a) in the latter part of 1964, after evaluation of the engineering designs referred to above, the Corporation will enter into an agreement or agreements for the development of prototype satellites for systems of one or more types; and (b) in the latter part of 1965, it will be determined whether the commercial system will be a medium altitude random system, a medium altitude controlled system

or a synchronous system. It is expected that the choice of a system type will be made after evaluation of the results of the operation of the synchronous satellite to be launched in 1965, and in the light of other information then available. The construction and technical characteristics of any operational system are subject to the prior approval of the FCC. See "Regulation".

The satellites of the system selected would be designed to provide at least 270 two-way telephone grade circuits initially, which could be used for the simultaneous transmission between two terminal stations of up to that number of telephone conversations or for the transmission of other forms of telecommunications. If development of efficient attitude stabilizing devices is completed in time and such devices are incorporated in the satellites, the design capacity of the satellites may be increased to up to 1200 such circuits.

There is set forth below, with respect to each of the alternative projected systems, information as to the characteristics of the system and the contemplated development schedule for such a system, should it be selected as the commercial system.

Medium Altitude System. A commercial medium altitude system would consist of satellites in orbit at an altitude of approximately 6,000 miles. Such a system might be either (i) a random system of approximately 18 satellites at that altitude, or (ii) a controlled system of a lesser number of satellites at that altitude, with desired spacings between the satellites being achieved through the use of position control equipment included in each satellite. It is expected that such a medium altitude system, when in full operation, would provide channels of communication on a substantially continuous basis between appropriate pairs of suitably equipped terminal stations located in various parts of the world.

Plans for such a system (if selected) contemplate that the first satellites would be launched in mid1966, and that launchings necessary to complete the system would be carried out within a period of
approximately a year from the date of such launchings. It also is contemplated that more than one satellite
would be placed in orbit by each launch vehicle. The program of the Corporation for the replacement of
satellites of a medium altitude system assumes that the satellites will have operating lifetimes of not less
than three years. To date, none of the experimental communications satellites launched in the United
States has had an operating lifetime in excess of 16 months, and the "multiple launching" technique
has not yet been attempted with communications satellites. See "Satellite Communications". A series
of failures in "multiple launching" attempts, or a general failure of satellites to achieve planned operating lifetimes, would have a serious adverse effect on the commercial feasibility of such a system.

Synchronous System. A commercial synchronous system would consist of at least three satellites in synchronous orbit at an altitude of approximately 22,300 miles. Such satellites would be stationed at appropriate points so as to be able to provide channels of communication on a continuous basis between appropriate pairs of suitably equipped terminal stations located in various parts of the world.

Plans for such a system (if selected) contemplate that, in mid-1966, two satellites will be placed in synchronous orbit above the Atlantic Ocean and one satellite will be placed in such an orbit above the Pacific Ocean. A second Pacific Ocean satellite or an Indian Ocean satellite, or both, might be launched in the following year. It is expected that satellites would be launched singly. The program of the Corporation for the replacement of satellites of a synchronous system assumes that the satellites will have operating lifetimes of not less than one year. The satellites of such a synchronous system would be in addition to those referred to under "Experimental Operational Satellites".

Combined Systems. It is envisioned that the initial global system to be established will not combine the use of satellites in synchronous orbit and random orbit. However, since the program of the Corporation involves placing an experimental operational synchronous satellite in orbit in 1965, it is possible that for a time use could be made of two different types of satellites. It is also possible that a com-

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mercial communications satellite system could ultimately consist of a combination of satellites of different types.

Command and Control Facilities. The Corporation plans to arrange for the design, construction and equipping of a command and control center for the system, to be located in the continental United States. The center would include computers, and would include or be linked to equipment for the tracking, guidance, control and command of the satellites constituting the system. It is expected that the construction and equipping of such center will be completed by mid-1966, to provide for the type of system theretofore selected.

Launching Services. The Corporation expects to enter into agreements with NASA providing for the purchase from NASA of the launching and associated services necessary to establish and maintain the system. The Corporation has held preliminary discussions with NASA with respect to the launching schedule contemplated by the program of the Corporation, the types of launch vehicles proposed to be used, and related matters, but the terms and provisions of such agreements have not been negotiated.

The Corporation expects that launch vehicles of types developed (or under development) in connection with the national space programs will be used in the launchings of satellites of the commercial communications satellite system. Launch vehicles of several types (the cost of which ranges from approximately \$3 million to \$10 million per vehicle) are believed to be suitable for such use. The Corporation has not yet determined the type of vehicle which would be used to launch the satellites of a medium altitude system or the satellites of a synchronous system. It is expected that such determination will be made at the time it is decided whether the system is to be a synchronous system, or a medium altitude random system or a medium altitude controlled system.

#### Proposed Terminal Stations

The program of the Corporation contemplates that (i) if the commercial communications satellite system is a medium altitude system, there would initially be three terminal stations in the continental United States (northeast, northwest and southeast quarters) and a terminal station in the State of Hawaii, and (ii) if the commercial system is a synchronous system, there would initially be two terminal stations in the continental United States (eastern half and western half) and a terminal station in the State of Hawaii. Under the provisions of the Act, a license to own and operate any of such terminal stations may be granted by the FCC only to the Corporation or to one or more communications common carriers, or to the Corporation and one or more such carriers jointly. The number and location of terminal stations in the United States actually licensed by the FCC may differ from the number and location of the stations contemplated by the program of the Corporation. As of the date of this Prospectus, neither the Corporation nor any carrier has filed with the FCC an application for such a license. AT&T and ITT each have constructed and own experimental terminal station facilities in the United States. Pursuant to authorizations by the FCC under the Communications Act of 1934, such stations have engaged in various telecommunications experiments.

AT&T and certain other carriers engaged in international telecommunications have stated, expressly or in substance, an intention to apply to the FCC at the appropriate time for authorization to own and operate, or to participate in the ownership and operation of, one or more United States terminal stations. The Corporation intends to apply to the FCC at the appropriate time for authorization to own and operate each terminal station in the United States (including the State of Hawaii) or to carry out arrangements with carriers which would give the Corporation operating control over United States terminal stations to be owned by such carriers. The Corporation has not negotiated any such arrangement with AT&T

or any other carrier. It is possible that the ownership and operation of terminal stations in the United States will be the subject of contested proceedings before the FCC among the Corporation and one or more communications common carriers.

The construction and operation of suitably equipped terminal stations in foreign countries are essential to the operations of the commercial communications satellite system. It is presently expected that terminal stations in foreign countries will be constructed, owned and operated by telecommunications entities or authorities other than the Corporation.

In the event that the proposed program referred to under "National Communications System Program" is undertaken, terminal station facilities required for the use of the Government in connection with such program would be owned by the United States Government. See "National Communications System Program".

#### National Communications System Program

By Executive Order of the President there was established in August, 1963 the National Communications System, which is responsible for the administration of all communications facilities serving the Government of the United States, including the Department of State, the Department of Defense, the General Services Administration, the Federal Aviation Agency, and all other governmental departments and agencies. Under this Executive Order, the Secretary of Defense is the Executive Agent for the President

For some time there have been discussions, which are continuing, between the office of the Secretary of Defense and the Corporation with a view to ascertaining whether a feasible program can be developed under which the National Communications System would be provided with satellite communications capability adapted to its needs, consistently with the development and establishment of a commercial communications satellite system.

As stated above under "System Development", the program of the Corporation contemplates active research and development on both synchronous and medium altitude communications satellite systems, with the ultimate decision to be made in 1965 as to whether the commercial system will be a medium altitude random system, a medium altitude controlled system, or a synchronous system. The office of the Secretary of Defense has advised the Corporation that, in order to minimize the risks of "jamming", and for other reasons, a medium altitude random system is needed. Accordingly, the discussions which have been had with the office of the Secretary of Defense have sought, on the one hand, to explore the possibilities of satisfying the requirements of the National Communications System if such a medium altitude system is selected, and on the other hand to spell out arrangements whereby the products of work done on a medium altitude random system could be utilized for the benefit of the Government on terms satisfactory to the Corporation and the Government in the event that another type of system is selected for the commercial satellite system.

If agreement should be reached with the Government under which, in the event of selection of a medium altitude random system as the commercial system, the National Communications System would be provided with capability to satisfy certain of its requirements, the range of estimated costs for the manufacture and placing in orbit of satellites constituting the system would be substantially greater than the \$75,000,000-\$90,000,000 range of such estimated costs in the case of a purely commercial system, as shown under "Summary of Program and Estimated Costs", and the time required for the design and the complete establishment of the system would probably be somewhat increased. In addition, launchings of replacement satellites would be required more frequently in the case of a system which provided service both to the Government and to other customers than in the case of a purely commercial system; and, accordingly, the expense of maintaining a system which served both the Government and other customers would be greater than the expense of maintaining a purely commercial system of the same

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capability. However, the parties are continuing to explore in their discussions whether, as the result of a program for such a "combined" system, (i) the portion of the total "combined" system cost properly allocable to the establishment and maintenance of system facilities (other than facilities to meet the Government's special requirement) would be less than the cost of a purely commercial system, and (ii) the portion of such total "combined" system cost properly allocable to the establishment and maintenance of the facilities to meet the Government's special requirements would be less than the cost of a separate system established by the Government to meet such requirements only. It is contemplated that if agreement were reached with the Government under which the National Communications System were provided with a portion of the capability of a medium altitude random system, charges would be made to the Government which would be such as to provide a resonable return on the portion of the total cost of the "combined" system properly allocable to such capability. Such charges may be subject to regulation by the FCC. It is not contemplated that the Government would contribute to the payment of the cost of establishing and maintaining such a "combined" system otherwise than through such charges.

Many technical and administrative problems would be involved in carrying out a program such as that outlined above, and many aspects of it are subject to the approval of the FCC, as well as other participants. Furthermore, the nature of such international arrangements as are made with the telecommunications entities in other countries, discussed below under "International Arrangements for System", may affect the feasibility of any such program or the manner in which it would be carried out. Although the Corporation believes that, if the proposed program could be carried out, it would offer advantages to both the Corporation and the Government, there is substantial question whether the problems inherent in the program can be resolved and as to the extent to which modifications in the program would affect the costs thereof or the time or manner in which it would be carried out.

#### Research and Development

The Corporation proposes to engage in communications satellite research and development activities as a part of the program for the establishment and operation of a commercial system. Certain of such research and development activities will be related to matters affecting the design of satellites which would be launched to establish the commercial satellite system. Other such activities will be directed toward matters affecting the design of satellites which would be launched after the system is in being, either as replacements for inoperative satellites of the system or for the purpose of increasing the capability of the system.

# INTERNATIONAL ARRANGEMENTS FOR SYSTEM

In accordance with the policies of the United States Government, which favor the development of a single global system, telecommunications entities in other countries have been and will be given the opportunity of participating with the Corporation in the establishment of the space segment (comprising the satellites and the command and control facilities) of the commercial communications satellite system. Officers of the Corporation and representatives of the United States Government have met with representatives of other governments and other telecommunications entities for the purpose of discussing international arrangements for such participation. In these discussions, the Corporation and the United States Government have proposed that the telecommunications entities in other countries might share with the Corporation the costs of establishing the space segment, which would be jointly owned by the Corporation and such entities in proportion to their respective investments. According to this proposal, each participant's share of the total investment in the space segment would be based upon its share of world telecommunications traffic which is suitable for transmission by a communications satellite system and upon the participant's anticipated use of the system. On this basis, the Corporation's share would exceed the shares of all other participants combined.

Under the proposal a committee representing the joint owners would be established, to which would be delegated the responsibility and authority for certain major decisions relating to the design, establishment and operation of the space segment. Thus, in the event that the proposed arrangements become effective, such decisions would not be made by the Corporation alone, but would require the concurrence of some of the other participants. However, the other participants would not have the power to make such decisions without the concurrence of the Corporation.

The proposal contemplates that the Corporation would act as manager on behalf of the joint owners in the designing, establishing and operating of the space segment and would be compensated for such services. It also contemplates that each of the investing participants would be allocated an equitable portion of the space segment capacity and that the Corporation would utilize its allocation to furnish satellite channels for hire to the United States communications common carriers and other authorized users. It is expected that the charges made to United States carriers for use of such channels would be a principal source of the Corporation's revenue.

The Corporation and the United States Government have proposed that appropriate interim arrangements covering the establishment and operation of the proposed system in its early stages be negotiated as soon as possible among prospective participants who are prepared to make immediate commitments for substantial investments of capital in the space segment, with provision for new investors to become participants at a later date. Certain of these arrangements would be among governments and other arrangements would be among the participating communications entities. Preliminary discussions are taking place in London with representatives of the governments and telecommunications entities of a number of countries, including Western European nations, Canada, Japan and Australia with respect to the proposed interim arrangements. It is expected that such discussions will be followed by negotiations with the governments and telecommunications entities of the above-mentioned countries during the middle and latter part of June. The outcome of such discussions and negotiations, and the terms of the interim arrangements which may result from them, cannot be predicted. In order to insure the development of a communications satellite system as promptly as possible, the Corporation intends to proceed with its program while discussions and negotiations with other governments and other telecommunications entities are pending, and it is prepared if necessary to finance the entire cost of establishing the system (exclusive of the costs of foreign terminal stations). Early in 1963 the United States Government suggested to the Government of the U.S.S.R. that it might be useful to have discussions relative to the establishment of a single global commercial communications satellite system. Recently that Government indicated that it would be prepared to hold such discussions, and the United States Government responded with the suggestion that a meeting for that purpose, in which the Corporation would participate, be held in June of this year.

The international allocation of frequency bands for space radio-communication services is a pre-requisite to the conduct of the operations of a commercial communications satellite system. Important steps in this area were taken at the Extraordinary Administrative Radio Conference on Space Communications, held in Geneva, Switzerland, in October and early November, 1963. The Conference, which was held under the auspices of the International Telecommunication Union (ITU), a specialized agency of the United Nations, allocated for communications satellite services (a) two 50 megacycle bands of frequency space, on an exclusive basis, and (b) 2500 to 2700 megacycles of frequency space, on a shared basis with existing radio services. A number of ITU members (including certain countries in Western Europe) have stated that, in their countries, certain existing radio services would continue to use either or both of the two 50 megacycle bands allocated by the Conference to communications satellite services

Number of Two-way Telephone

# INTERNATIONAL TELECOMMUNICATIONS

# Facilities for International Telecommunications

Telecommunications service between the United States and overseas points is provided by United States communications common carriers (U. S. carriers), in most instances in collaboration with telecommunications entities in foreign countries. The U. S. carriers are subject to regulation by the FCC under the Communications Act of 1934, and other provisions of law, with respect to the construction and operation of facilities for such service and the rates charged therefor. The collaborating telecommunications entities in foreign countries are either government-owned or privately owned, but subject to regulation or control by the governments of such countries. International service between points outside the United States is provided by agencies of foreign governments, by other foreign telecommunications entities and by U. S. carriers.

International telecommunications service is provided primarily by means of submarine telephone cables, high-frequency radio facilities and submarine telegraph cables, and, in respect of service between contiguous countries, also by terrestrial (overland) facilities.

Submarine Telephone Cables. Submarine telephone cables carry all forms of record traffic, as well as telephone traffic. Existing telephone cables, and those planned to be in service by December 31, 1965, are not designed to transmit high-quality television signals. The first oceanic telephone cable (Florida-Cuba) began service in 1950 and the first trans-Atlantic telephone cable was placed in operation in 1956. Other important submarine telephone cable systems have been placed in operation at various times since 1956. Further advances in cable and related technology have greatly increased the initial capacity of telephone cables most recently placed in service. In addition, significant increases have been made in the capacity of earlier telephone cables, primarily by the installation of additional cable terminal equipment ("TASI equipment"), which automatically utilizes capacity resulting from intervals in one conversation for the transmission of another conversation. AT&T and others are carrying out programs to place additional telephone cable systems in operation at various future dates.

The following table sets forth information with respect to the principal submarine telephone cable systems in operation at December 31, 1960, and December 31, 1963, or scheduled to be in operation at December 31, 1965, other than those within Europe or between Europe and North Africa:

	Number of Two-way Telephone Grade Circuits in Service at December 31		elephone rvice
Cable System(a)	1960(b)	1963(b)	1965 (Est.) (b)
North Atlantic	Mary on the Control of the Control o	100 (0)	(131.) (1)
U.S. or Canada—U.K. or France Primarily for U.S. traffic Other systems	170	298 104(d)	426(c) 104(d)
Western Hemisphere(e)		ulona grono-o	Satisfaction of
U.S.—Alaska	36	48	48
U.S.—Puerto Rico U.S.—Bermuda	48	85 80	85 80
		00	00

	Grade Circuits in Service at December 31		
Cable System(a)	1960(b)	1963(b)	1965 (Est.) (b)
U.S.—Jamaica	Can-positive	128	128
Jamaica—Canal Zone	<u>Living and </u>	128	128
Canal Zone—Colombia	ni pantikis	Sta zzańsa	80
U.S.—Virgin Islands	- 412	_	128
Virgin Islands—Venezuela	- 194	_	80
PACIFIC AREA			
U.S.—Hawaii	48	85	213
Canada—Hawaii	biro <u>w</u> esta 1	80	80
Hawaii—Guam—Japan	s acircleth	guibel or to	128
Guam—Philippines		_	128
Hawaii—New Zealand	100 200	80	80
Australia—New Zealand	one realist	80	80
Australia—Malaysia—Hong Kong	Laro-Selvan	lities <del>) -</del> was c	80

(a) As used in the table, U.S. refers to points within the 48 contiguous States of the United States and U.K. refers to the United Kingdom.

(b) Numbers of circuits in service at December 31, 1960 and December 31, 1963 include circuits provided by TASI equipment installed at said dates. Estimates of circuits to be in service at December 31, 1965, are based on assumptions that (i) systems planned for completion by that date will be so completed and will then provide planned capacity, and (ii) systems in operation at December 31, 1963, will be in operation at December 31, 1965, and will then provide the same capacity as provided at December 31, 1963. The design capacity of cable systems planned to be constructed before December 31, 1965, and the capacity of certain of the cable systems in service at December 31, 1963 (including certain of the North Atlantic systems) could be increased substantially for traffic of certain types (including message telephone service) by the installation of TASI equipment. The FCC, which heretofore has not required that its authorization be obtained for installation of TASI equipment, recently has stated that such authorization should be required of U.S. carriers for future installation of such equipment.

(c) Includes the initial planned capacity (128 two-way telephone grade circuits) of a cable between New Jersey and France, the construction of which by mid-1965 the FCC, on March 17, 1964, determined to be required by the public interest, convenience and necessity. Such determination was made in proceedings upon applications of AT&T for authority to construct such a cable over that route, and of Mackay Radio and Telegraph Company (Mackay), an affiliate of ITT, for authority to construct a trans-Atlantic cable over a different route. AT&T's application estimated that its share of the costs of the cable proposed by it (in which AT&T would have an ownership interest of approximately 65%) would be \$34,347,000. The FCC's determination provided that the new cable should be authorized in the name of all the United States overseas telecommunication entities (both record and telephone) which desire to participate in such ownership. Pursuant to such determination, upon applications by the entities hereinafter referred to, the FCC on May 6, 1964, authorized AT&T, Mackay, Press Wireless, Inc., RCA Communications, Inc. and Western Union International, Inc. to construct and operate such cable.

(d) Includes the capacity (24 two-way telephone grade circuits) provided by cable systems extending from Canada to Iceland and from Iceland to the United Kingdom, used exclusively by the international airlines of North Atlantic countries to provide communication services necessary for the conduct of their operations.

(e) In addition to the Western Hemisphere cable systems shown above, the Corporation is advised that ITT and AT&T propose, subject to the obtaining of various requisite governmental approvals, jointly to construct and operate a cable, with a design capacity of 160 two-way telephone grade circuits, from the Canal Zone down the west coast of South America to Chile, which it is contemplated would be completed by the end of 1965. See "Competition".

Of the cable systems included in the foregoing table, AT&T owns, or has ownership interests in (or, in respect of systems to be constructed before December 31, 1965, is expected to own or have ownership interests in), (i) all the North Atlantic cable systems reflected in the numbers of circuits shown opposite "Primarily for U. S. Traffic", (ii) each of the cable systems referred to under the

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heading "Western Hemisphere", (iii) the U. S.-Hawaii cable systems, and (iv) the Hawaii-Guam-Japan and the Guam-Philippines cable systems. Hawaiian Telephone Company also has ownership interests in the U. S.-Hawaii cable systems and the Hawaii-Guam-Japan cable system. Affiliates of ITT have ownership interests in the U. S.-Puerto Rico, the U. S.-Virgin Islands, the U. S.-Jamaica and the Jamaica-Canal Zone cable systems.

AT&T and others are engaged in the development of improved submarine telephone cables. See "Competition".

High-Frequency Radio Facilities. High-frequency radio (HFR) facilities serve telephone and record traffic on routes served by telephone cables and, in addition, provide the only telephone and record service to the many areas of the world which do not have cable connections. Communication by HFR circuits is subject to fading, distortion and blackout because of disturbances in the ionosphere.

HFR facilities began extensive service for international record traffic shortly before World War I, and for international telephone traffic in 1927. All international telephone traffic (except that carried by overland facilities) was carried on HFR circuits until the introduction of submarine telephone cables in 1956. Submarine telephone cables now carry a far greater part of international telephone traffic than is carried by HFR facilities between places having both telephone cable and HFR service. On routes which have submarine telephone cable service, HFR facilities are operated primarily on a standby basis.

In addition, communications circuits for all forms of telecommunication are provided by tropospheric scatter radio systems and ionospheric scatter radio systems. Tropospheric scatter systems are used for communication over relatively short distances (i.e., 300 miles or less). Ionospheric scatter systems are also used for communication over longer routes. The capacity of scatter systems in comparison with the capacity of submarine telephone cables is not significant.

Submarine Telegraph Cables. Service provided by submarine telegraph cables is limited to message telegraph and other telegraph transmissions. The capacity of such cables in comparison with the capacity of submarine telephone cables is not significant. Beginning in 1960, U. S. carriers which operate submarine telegraph cables have leased circuits in submarine telephone cables for transmission of telegraph and other forms of record traffic, and since that time an increasing proportion of the record traffic between the United States and overseas points has been transmitted through such leased circuits. With the approval of the FCC, certain U. S. carriers recently have abandoned submarine telegraph cables (including trans-Atlantic telegraph cables) theretofore operated by them.

## Traffic and Revenues

Telephone traffic and record traffic between the United States and overseas places constitute an important part of all telephone and record traffic between different continents or areas of the world. It is estimated that, in 1963, overseas telephone messages originating or terminating in the continental United States represented approximately 70% of the total number of intercontinental telephone messages, and that approximately one-half the revenues from overseas telephone messages originating or terminating in the United States were received by U. S. carriers.

Telephone and record traffic between the United States and overseas places has increased continuously since the end of World War II. In respect of record traffic, the most rapid growth has been in forms of service other than message telegraph service, principally teleprinter exchanges service (telex) and leased circuit services. The following table sets forth information, for each of the years indicated, with respect to telephone traffic between the continental United States and places outside

the continental United States (except Canada and Mexico). The table shows, in respect of such routes, the total number of chargeable telephone calls transmitted by the principal U. S. telephone carriers, and the gross revenues of the U. S. telephone carriers from such calls:

	No. of Chargeable Calls (Thousands)	Gross Revenues from Chargeable Calls (Thousands of \$)*	
1947	. 517	\$ 5,833	
1950	. 745	8.198	
1955	. 1,194	13,001	
1956	1,394	15,802	
1957	2,178	22,679	
1958	. 2,427	27,841	
1959	2,736	33,110	
1960	. 3,301	42,322	
1961	3,945	50,906	
1962	4,461	61,387	
1963 (est.)	4,825	69,410	

\*Exclusive of any revenues (approximately \$12,700,000 in 1962) derived by U. S. telephone carriers from leases of circuits, principally to U. S. telegraph carriers and to agencies of the United States Government. Information in the table (except estimates for 1963) is from statistical publications of the FCC for the years indicated.

The revenues of the U. S. carriers shown in the table reflect (1) charges for the domestic segment of the telephone calls (including terminal handling), as well as charges for the overseas segment of the calls, and (2) rates established for a "retail" communications service, rendered directly to the public. In contrast, any revenue which the Corporation would receive from leases of satellite system channels would relate only to the overseas segment of the service, and would reflect rates to be established for a "wholesale" service rendered to the carriers and not directly to the public. Accordingly, any revenues of the Corporation under leases of satellite system channels to U. S. carriers would be less than the revenues which the U. S. carriers would receive from their customers for providing overseas telephone service through such satellite system channels. The revenues shown in the table include revenues of U. S. carriers from calls over certain routes (e.g., between the U. S. and places in the Caribbean) which would not necessarily be served by satellite system channels in the early years of a commercial satellite system.

Of the gross revenues of the U. S. telephone carriers from overseas chargeable calls in 1962, as shown in the foregoing table, \$22,668,000 (37%) relate to chargeable calls classified as "Trans-Atlantic and Bermuda", \$21,927,000 (36%) relate to chargeable calls classified as "Central America, South America and Caribbean" and \$16,792,000 (27%) relate to chargeable calls classified as "Trans-Pacific".

The aggregate amount paid by U. S. telegraph carriers for the rental of circuits in submarine telephone cables from U. S. telephone carriers and others is estimated at approximately \$4,662,000 for 1963. The gross revenues of the U. S. telegraph carriers from record traffic service between the United States and overseas places are a much larger amount, reflecting not only such leased circuit costs but charges in respect of the HFR or telegraph cable facilities operated by them for traffic not transmitted through such leased circuits, charges attributable to transmission services in the United States from points of origin to gateways for overseas transmission, and charges in respect of non-transmission services.

The demand for telecommunications service between Western Europe and North America, and on certain other overseas routes, exceeded the capacity of available facilities during peak demand hours in 1963

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The rate of growth in the demand for international telecommunications service is influenced by many factors, including population growth, the extent of international trade and travel, the extent of improvements in domestic telecommunications systems and rates for international telecommunications service. Estimates with respect to the demand for international telecommunications service at various times through 1980 have been published in recent years by U. S. carriers, by representatives of such carriers and by international bodies and other persons. Such estimates, which are not necessarily based on the same information with respect to relevant matters or on the same assumptions with respect to factors which may affect the demand for international telecommunications service, differ substantially from each other in certain respects. All such estimates of which the officers of the Corporation have knowledge, however, reflect the view that, during the periods to which such estimates, respectively, relate, there will be a continuous growth in the demand for telephone and record traffic service between the continental United States or North America and other areas of the world, and that the demand for telephone and record traffic service between the continental United States and Western Europe will exceed the capacity of telephone cables now in existence or now scheduled for construction through 1965 within a period of not more than a year thereafter. Estimates of future demand for international telecommunications service necessarily are based on assumptions and predictions with respect to factors which may affect the growth of such demand, and the accuracy of such estimates may depend upon the substantial correctness of the assumptions and predictions on which the estimates are based.

Although the need for a commercial communications satellite system derives primarily from the anticipated growth in demand for international telecommunications services and the relationship of such demand to the capacity of present and proposed submarine telephone cables, it is possible that, once such a system has been established, it may be used to provide service between intracontinental points separated by long distances. The Corporation is unable to predict the extent of such intracontinental use of the proposed system.

Submarine cable systems (and/or other telecommunications facilities), in addition to those now planned, may be constructed and placed in operation at or before the time the commercial communications satellite system is established, to meet the anticipated increase in demand for international telecommunications service. See "Competition".

#### COMPETITION

The U. S. carriers and telecommunications entities in other countries to which satellite system channels will be offered own and operate the submarine telephone cable systems and HFR facilities with which the satellite system will compete. In respect of telephone and record traffic between the continental United States and overseas points, the facilities of the satellite system will compete principally with those of AT&T and the U. S. telegraph carriers.

The amount of the revenues from the operations of the satellite system will depend in the first instance on the ability of the system to provide communication channels of commercial quality. The amount of such revenues will also be affected by the extent of the growth of international telecommunications traffic and the extent of the construction of submarine telephone cable systems or other telecommunications facilities. The competitive position of the Corporation will depend on its ability to develop and operate a satellite system which compares favorably, in cost and efficiency, with service provided by cable systems or other telecommunications facilities.

AT&T and others are engaged in the development of improved submarine telephone cables. The cables under development by AT&T include cables in which transistors would be used for the first time in certain submerged components of the cable. A 3,000-mile cable in which transistors are so utilized would have a design capacity of up to 720 two-way telephone grade circuits and could provide service, between the places connected by such cables, for all the forms of telecommunications traffic which the satellite system might serve. None of the trans-oceanic cables shown in the table under "International Telecommunications—Facilities for International Telecommunications" as scheduled to be in operation by December 31, 1965, will be a transistorized cable. The design capacity of the trans-Atlantic telephone cable recently authorized by the FCC to be constructed in 1965 is 128 two-way telephone grade circuits.

Under the Communications Act of 1934, and other provisions of law, the construction and operation of a submarine telephone cable between the United States and an overseas point may not be undertaken unless the FCC has determined that the present or future public convenience and necessity require or will require the construction and operation of the cable.

In December, 1963, AT&T advised the Corporation, among other things, to the effect that (a) AT&T sees a place and a need for both satellite and cable communications, in order to provide for anticipated increases in the volume of trans-oceanic communications and to provide diversity in means of communication, (b) if satellite system circuits of satisfactory quality and costs reasonably related to the costs of providing communication circuits by alternative means are available in late 1966 or early 1967 on North Atlantic routes, AT&T would prefer, in order to provide diversity of facilities in meeting additional needs, to use satellite circuits instead of placing additional cables in service on such routes, subject to the giving to AT&T during 1964 of assurances that suitable satellite circuits would be available in 1966 or early 1967, the obtaining of the agreement of the interested European telecommunications entities (which AT&T would take all reasonable steps to help obtain), and the obtaining of necessary authorizations from the FCC, and (c) it appears to AT&T that such preference for satellite circuits would continue until North Atlantic routes were served by approximately equal numbers of cable system voice circuits and satellite system voice circuits. Regardless of the type of system selected, the present program for system development contemplates the emplacement by early 1967 of at least a number of satellites providing North Atlantic circuits satisfactory in quality and having costs bearing a reasonable relationship to alternative methods, which would be sufficient to provide an average grade of service (percentage of total number of customer calls for which circuits are available immediately) equivalent to that obtained by means of North Atlantic cable circuits at the present time. See "System Development".

The Corporation is informed that ITT (subsidiaries of which operate telecommunications systems in various South and Central American countries) and AT&T have recently transmitted letters to the Department of State stating that they desire to construct by the end of 1965, and participate in the ownership and operation of, a submarine telephone cable which would extend from the Canal Zone down the west coast of South America to Chile. This cable, which would have a design capacity of 160 two-way telephone grade circuits, would constitute a continuation of a submarine telephone cable recently put in operation between the United States and the Canal Zone via Jamaica. The Corporation is informed that this cable may subsequently be connected with facilities, to be constructed, which would provide a continuation of similar telecommunications service across the Andes to Argentina and, by submarine cable, along the east coast of South America, to Brazil. In their letters to the Department of State, ITT and AT&T expressed the view that both cable and satellite facilities are needed. In its letter ITT also stated that it had initiated discussions with the governments of various South American countries looking toward the granting of franchises for both cable facilities and satellite terminal stations. The Corporation is

unable to state the extent to which the cable program described above, if the requisite approvals of governmental authorities in the United States and other countries are obtained and the cable system is constructed, might adversely affect the establishment of or the revenues from satellite communications services between the United States and South American countries or between South American countries.

In respect of telecommunications traffic between places outside the United States, the facilities of the satellite system will compete principally with facilities of foreign telecommunications entities, which may include facilities not now scheduled to be constructed.

#### REGULATION

The Corporation is subject to regulation by the FCC under the provisions of the Act and, as a communications common carrier, under certain provisions of the Communications Act of 1934. The matters as to which the FCC has regulatory authority include, among other things, (a) the procurement by the Corporation of equipment and services required for the establishment and operation of the satellite system and terminal stations, (b) the use by communications common carriers of the facilities of the satellite system and terminal stations, including the charges to be made therefor, (c) the making of additions with respect to the facilities of the satellite system or terminal stations, including authority to insure that no substantial additions are made by the Corporation or carriers with respect to facilities of the satellite system or terminal stations unless such additions are required by the public interest, convenience, and necessity, and authority to require the establishment of service to particular foreign points upon advice of the Secretary of State of the United States that such service should be established in the national interest, (d) the technical characteristics of the satellite system and terminal stations, including the technical compatibility and operational interconnection of the system and terminal stations with each other and with existing communications facilities, (e) accounting systems, and (f) the issuance of securities (other than the issuance of the shares of Common Stock to which this Prospectus relates) and the borrowing of funds. Under the provisions of such Act or Acts, in respect of rates charged by the Corporation for service to communications common carriers and other authorized users, the FCC may limit the Corporation to a reasonable rate of return, and the FCC is also directed by the Act to engage in such rate-making procedures as will insure that any economies made possible by a communications satellite system are appropriately reflected in rates for public communications services. The Act also provides that the FCC shall authorize the construction and operation of each satellite terminal station by the Corporation or one or more communications common carriers authorized to provide services by means of communications satellites, or by the Corporation and one or more such carriers jointly, without preference to either the Corporation or such carriers, as will best serve the public interest, convenience and necessity.

Under the provisions of the Act, the Corporation is required to meet certain responsibilities to representatives or agencies of the United States Government other than the FCC. The Act provides that (a) the President of the United States shall exercise such supervision over the relationships of the Corporation with foreign governments, foreign entities and international bodies as may be appropriate to assure that such relationships are consistent with the national interest and foreign policy of the United States, and that the President shall exercise various other powers relating to the establishment and operation of a commercial communications satellite system; (b) the Corporation shall notify the Department of State whenever it enters into business negotiations with a foreign or international entity relating to the Corporation's facilities, operations or services, shall receive the advice of that Department with respect to relevant foreign policy considerations and, throughout

such negotiations, shall keep the Department informed with respect to such considerations; (c) NASA shall, among other things, consult with the Corporation with respect to the technical characteristics of the satellite system; cooperate, to the extent deemed appropriate by it, in the Corporation's research and development program; and provide, on a reimbursable basis, satellite launching and associated services deemed necessary by NASA in connection with the research and development program of the Corporation or required for the establishment, operation and maintenance of the communications satellite system; (d) the Corporation shall transmit to the President of the United States and to the United States Congress, detailed reports of its operations, activities and accomplishments under the Act; and (e) the Attorney General of the United States may institute appropriate court proceedings to prevent or terminate actions by the Corporation which are inconsistent with the policies and purposes declared in the Act or which involve or threaten a refusal or failure by the Corporation to comply with the provisions of the Act.

Under the provisions of the NASA Authorization Act for the 1964 fiscal year, the Corporation is required to reimburse NASA for any scientific or technological services furnished at the request of the Corporation for its exclusive benefit.

Communication via the satellite system with a telecommunications entity in any other country may also be subject to regulation or control by the government of such country.

#### MANAGEMENT

#### Director

In accordance with the provisions of the Act, the present Board of Directors of the Corporation consists of persons appointed by the President of the United States, with the advice and consent of the United States Senate, as incorporators of the Corporation. The name and principal occupation of each such person are as follows:

person are as follows:	
Name	Principal Occupation
Joseph V. Charyk	President of the Corporation, Washington, D. C.
John T. Connor	President, Merck & Co., Rahway, New Jersey
George J. Feldman	Vice President and Counsel, Mastan Co., New York, N. Y.
Beardsley Graham	President, Spindletop Research, Inc., Lexington, Kentucky
Sam Harris	Attorney, New York, N. Y.
Edgar F. Kaiser	President, Kaiser Industries Corporation, Oakland, California*
David M. Kennedy	Chairman, Continental Illinois National Bank and Trust Company of Chicago, Chicago, Illinois*
George Killion	President, American President Lines, San Francisco, California
Byrne Litschgi	Attorney, Tampa, Florida
Leonard H. Marks	Attorney, Washington, D. C.
Bruce G. Sundlun	Attorney, Washington, D. C.
Sidney J. Weinberg	Partner, Goldman, Sachs & Co., New York, N. Y.
Leo D. Welch	Chairman and Chief Executive Officer of the Corporation, Washington, D. C.*
Leonard Woodcock	Vice President, UAW-CIO, Detroit, Michigan

\* Continental Illinois National Bank and Trust Company of Chicago, of which Mr. Kennedy is a director and Chairman of the Board, Bank of America National Trust and Savings Association, of which Mr. Kaiser is a director, and First National City Bank, of which Mr. Welch is a director, are among the banks which are parties to the Corporation's bank credit agreement. See "Notes to Financial Statements".

The present Board of Directors will serve until the first annual meeting of shareholders following completion of the offering made by this Prospectus. It is expected that such shareholders meeting will be held on or about September 1, 1964. As provided in the Act and the Articles of Incorporation of the Corporation, the Board of Directors thereafter will consist of 15 individuals, of whom (a) three will be appointed by the President of the United States, by and with the advice and consent of the Senate, for terms of three years (except that the first three directors so appointed will continue in office for terms of one, two and three years, respectively), (b) six will be elected annually by those holders of Common Stock which are communications common carriers (holders of Series II shares), and (c) six will be elected annually by holders of Common Stock who are not communications common carriers or persons having specified relationships to any such carrier (holders of Series I shares). See "Description of Common Stock—Voting Rights", below. The Articles of Incorporation provide that each director, regardless of the method of his appointment or election, shall have the same fiduciary duty to the Corporation and its shareholders.

Under the provisions of the By-laws of the Corporation presently in effect, no vote may be counted for the election of any person as a director unless (a) such person was proposed for nomination to be a candidate by written notice signed by a shareholder of the appropriate Series and mailed to the Secretary of the Corporation not less than 10 nor more than 50 days before the date of the meeting, (b) such person has filed with the Secretary of the Corporation a statement of his interests in any communications common carrier, and (c) a statement of the interests of such person in any communications common carrier shall have been included in each written solicitation of proxies in favor of his election, made by such person or by his proposer.

It is the intention of the present Board of Directors, as holders of Series I shares, to nominate six candidates for election as directors by holders of Series I shares (public shareholders) at the first annual meeting of shareholders, and to solicit proxies for the election of such candidates. Such candidates may include members of the present Board of Directors. The identity of such candidates has not been determined.

### Officers and Staff Division Heads

The names of the executive officers and heads of the principal staff divisions of the Corporation are as follows:

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Name	Office or Position
Leo D. Welch Joseph V. Charyk Allen E. Throop Siegfried H. Reiger Lewis C. Meyer** Frederic M. Mead David J. Melamed John A. Johnson Sidney Metzger Matthew Gordon	President* Vice President and General Counsel* Vice President (Technical)* Treasurer* Comptroller* Secretary* Director of International Arrangements Manager, Engineering Division

<sup>\*</sup>Executive officer elected by the Board of Directors.

\*\* Mr. Meyer is also Finance Coordinator of the Corporation.

Mr. Welch has served as Chairman and Chief Executive Officer of the Corporation since March 31, 1963. From 1944 to that date, he served in various capacities with Standard Oil Company (New Jersey), including service as a vice president (September 6, 1956 to April 2, 1958), executive vice president and member of the executive committee (April 3, 1958 to April 30, 1960) and chairman of the board and vice chairman of the executive committee (May 1, 1960 to March 31, 1963).

Dr. Charyk has served as President of the Corporation since February 28, 1963. From January 1959 to that date, he served in various civilian capacities with the United States Department of the Air Force, including service as Chief Scientist of the Air Force (January, 1959 to June, 1959), Assistant Secretary of the Air Force for Research and Development (June, 1959 to January, 1960), and Under Secretary of the Air Force (January, 1960 to February, 1963). Before such service with the Department of the Air Force, Dr. Charyk was General Manager of the Space Technology Division of Aeronutronic Systems, Inc. (a subsidiary of the Ford Motor Company) and was a director of the Aerophysics and Chemistry Laboratory of Lockheed Aircraft Corporation.

Mr. Throop has served as Vice President and General Counsel of the Corporation since May 31, 1963. From 1945 to that date he was a member of the law firm of Messrs. Shearman & Sterling, New York, N. Y.

Mr. Reiger was elected Vice President (Technical) of the Corporation, effective May 15, 1964. From June 3, 1963 to that date he served as the Corporation's Manager for Systems Analysis. From January, 1959 to June 3, 1963, he served as a Senior Staff Member of The Rand Corporation, Santa Monica, California.

Mr. Meyer has served as Finance Coordinator of the Corporation since June 2, 1963, and as Treasurer and Finance Coordinator since April 10, 1964. From July, 1958 until his employment by the Corporation, he served in various civilian capacities with the United States Department of the Air Force, including service as Chief, Missile and Space Systems Division, Office of the Comptroller of the Air Force (July, 1958 to August 1962), and as Deputy for Financial Analysis, Office of the Assistant Secretary of the Air Force (Financial Management) (August, 1962 to June 2, 1963).

Mr. Mead was elected Comptroller of the Corporation, effective May 1, 1964. From March 1, 1958 to April 30, 1964, he served in various capacities with Mallinckrodt Chemical Works, St. Louis, Missouri, including service as Controller (April 4, 1961 to April 30, 1964).

Mr. Melamed served as Assistant Counsel to the Chairman of the Incorporators of the Corporation from November 6, 1962 to January 31, 1963, as Assistant Secretary of the Corporation from February 1, 1963 to September 15, 1963, and has served as Secretary of the Corporation since that time. From August 11, 1956 to November 5, 1962, he was an associate with the law firm of Messrs. Cravath, Swaine & Moore, New York, N. Y.

Mr. Johnson has served as Director of International Arrangements since December 9, 1963. From October, 1958 to that date, he served as General Counsel of the National Aeronautics and Space Administration.

Mr. Metzger has served as Manager, Engineering Division, since June 6, 1963. From 1954 to that date, he served in various capacities with Radio Corporation of America (RCA), including service as Manager, Communications Engineering, of the Astro-Electronics Division of RCA and Manager of RCA's New York Communications System Laboratory.

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Mr. Gordon has served as Director of Information, including public relations and government relations, since May 20, 1963. From March, 1946, to September, 1961 Mr. Gordon was in charge of press services at the United Nations. From the latter date until May 20, 1963, he was in private business, primarily as a consultant to technological companies.

#### Remuneration

The following table sets forth the aggregate direct remuneration for services in all capacities estimated to be payable by the Corporation in 1964 (a) to each director, and each of the three highest-paid officers, of the Corporation whose aggregate direct remuneration in such year is estimated will exceed \$30,000, and (b) to all directors and officers of the Corporation as a group:

Name of Individual or Identity of Group	Capacities In Which Remuneration Was Received	Aggregate Direct Remuneration*
Joseph V. Charyk	Chairman and Chief Executive Officer President Vice President and General Counsel	\$125,000 80,000 50,000

\* It is estimated that the following additional amounts will be payable by the Corporation in 1964 as life insurance premiums in respect of the officers named under policies other than the Corporation's contributory group insurance policy: Mr. Welch, \$4,481; Dr. Charyk, \$714; Mr. Throop, \$1,183.

The Corporation does not have an employment contract with any of its officers or employees, or any plan or arrangement for the payment of retirement benefits to any of its directors, officers or employees.

#### Personnel

At June 1, 1964 the Corporation employed 79 persons, of whom 43 were administrative or professional employees. None of the employees of the Corporation is represented by a collective bargaining agent. It is expected that increases in the number of employees of the Corporation will be required in the carrying out of the program to establish a commercial communications satellite system, and also in the operation of the system, including command and control facilities and such of the terminal stations in the United States as may be operated by the Corporation.

# DESCRIPTION OF COMMON STOCK

For a full description of the Common Stock of the Corporation, reference is made to the Communications Satellite Act of 1962, and to the Articles of Incorporation, as amended, of the Corporation, a copy of which is filed as an Exhibit to the Registration Statement. The statements herein summarizing certain provisions of said Articles and the Act are qualified by such reference.

The New York Stock Exchange, the Midwest Stock Exchange and the Pacific Coast Stock Exchange each has approved the listing on such Exchange of the shares of Common Stock to which this Prospectus relates, subject to official notice of issuance, the furnishing of evidence of satisfactory distribution of the shares and the furnishing of certain other documents. The date for the commencement of trading of such shares on these Exchanges has not been determined, and is subject, among other things, to the prior registration of such shares under the Securities Exchange Act of 1934.

The transfer agents for the Common Stock are Continental Illinois National Bank and Trust Company of Chicago, Chicago, Ill.; Manufacturers Hanover Trust Company, New York, N. Y.; and Wells Fargo Bank, San Francisco, Calif.

The registrars for the Common Stock are The First National Bank of Chicago, Chicago, Ill.; The Chase Manhattan Bank, New York, N. Y.; and Bank of America National Trust and Savings Association, San Francisco, Calif.

By amendment of the Articles of Incorporation effective May 6, 1964, the authorized capital of the Corporation was increased from 100 shares of Common Stock, without par value, to 10,000,100 such shares.

#### Series I and Series II Shares

Shares of Common Stock are issuable in two series designated respectively Series I and Series II. Except as stated below under "Restrictions on Ownership and Transfer of Shares" and "Voting Rights", the rights of a holder of a Series I share, as such, and the rights of a holder of a Series II share, as such, are the same.

Shares issued or transferred to persons other than authorized carriers are Series I shares. Shares issued or transferred to authorized carriers are Series II shares. Authorized carriers are those communications common carriers, as defined below, which have been authorized by the FCC to own shares of stock of the Corporation. Shares of either Series may not be issued or transferred to a communications common carrier which is not an authorized carrier or to persons having certain relationships with a communications common carrier. See "Restrictions on Ownership and Transfer of Shares".

Under the provisions of the Act and the Articles of Incorporation, in any offering by the Corporation of Common Stock, 50% of the shares to be offered must be reserved for offering and offered for purchase by authorized carriers. Shares reserved and offered to authorized carriers but not purchased by them may be offered to other persons.

#### Dividend Rights

Holders of Common Stock are entitled to receive such dividends, in cash, in property or in shares of stock of the Corporation, as may be declared by the Board of Directors. Holders of Common Stock, as such, have equal dividend rights, irrespective of the Series of shares of Common Stock held by them.

#### Liquidation

Upon any liquidation, dissolution or winding up of the Corporation, holders of shares of Common Stock, irrespective of the Series of such shares held by them, are entitled to receive, pro rata, the assets of the Corporation available for distribution.

#### Restrictions on Ownership and Transfer of Shares

Subject to the limitations referred to below, holders of Series I shares or of Series II shares may at any time sell or otherwise dispose of such shares to any person to whom shares of either Series may be issued and, upon surrender of the share certificate for transfer, the transferee will receive a certificate, representing the same number of shares as the surrendered certificate, for shares of the Series appropriate to him.

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The ownership and transfer of shares of Common Stock are subject to the following provisions:

(i) Except for an authorized carrier, shares of Common Stock may not be owned or held, directly or indirectly, by any communications common carrier, or by a subsidiary or affiliated company of any communications common carrier, or by a trustee, director or officer of any of the foregoing. For these purposes, the term "communications common carrier" has the meaning of the term "common carrier" as used in the Communications Act of 1934, and also includes any person or entity which owns or controls, directly or indirectly, or is under direct or indirect common control with, any such carrier, but does not include the Corporation. Reference is made to the definition, in the By-laws of the Corporation, of the terms "subsidiary" and "affiliated company" of a "communications common carrier". See "Voting Rights".

(ii) The aggregate number of shares of Common Stock owned or held, directly or indirectly, by authorized carriers may not at any time exceed 50% of the total number of shares of Common Stock issued and outstanding.

(iii) Not more than an aggregate of 20% of the number of shares of Common Stock owned or held by persons other than authorized carriers may be owned or held by persons of the classes described in paragraphs (1) through (5) of Section 310(a) of the Communications Act of 1934. The classes as described consist of aliens, foreign governments, representatives of aliens or foreign governments, and corporations organized under the laws of foreign governments (hereinafter collectively called Alien Persons); corporations of which any officer or director is an alien or of which more than 20% of the capital stock is owned of record or voted by Alien Persons; and a corporation which is directly or indirectly controlled by any other corporation of which any officer or more than one-fourth of the directors are aliens or of which more than 25% of the capital stock is owned of record or voted by Alien Persons.

(iv) As provided in the Act, the number of shares of Common Stock owned or held by any person (other than an authorized carrier) or syndicate or affiliated group of such persons may not at any time exceed 10% of the total number of shares of Common Stock at the time outstanding, or, as provided in the Articles of Incorporation, such lesser percentage thereof as the Board of Directors may from time to time determine for the purpose of encouraging the widest distribution of shares of Common Stock to the American public. Notice of any such determination by the Board of Directors must be mailed to each record holder of Common Stock not less than ten days prior to the effective date of such determination. The ownership of shares acquired before the effective date of any such determination is not affected thereby. Pursuant to such provisions of the Articles of Incorporation, the Board of Directors has fixed 1% as the maximum percentage of the outstanding shares of Common Stock which may be owned or held by any shareholder (other than an authorized carrier) or syndicate or affiliated group of such shareholders. The FCC has advised the Corporation that it has determined that any action by the Corporation fixing such a maximum percentage of less than 10% is subject to review by the FCC to ascertain its reasonableness in the light of the purposes and objectives of the Act. The Corporation has been advised by its special counsel, Messrs. Wilmer, Cutler & Pickering, Washington, D. C., that, in the opinion of such firm, the FCC does not have authority to review and set aside such action of the Board of Directors, and that any such action of the Board may be determined to be invalid under the Act only by the courts.

(v) No authorized carrier or affiliated group of such carriers may sell or transfer to persons other than authorized carriers shares of Common Stock totalling, in any consecutive 12-month

period, more than 2% of the greatest number of Series II shares issued and outstanding at any time during such period, except pursuant to a general public offering or in conformity with regulations adopted by the Board of Directors to encourage the widest distribution of shares of Common Stock to the American public.

(vi) The FCC is authorized, upon application by any authorized carrier and after notice and hearing, to require any other authorized carrier which owns shares of Common Stock to transfer to the applicant, for a fair and reasonable consideration, such number of shares as the FCC determines will advance the public interest and the purposes of the Act.

#### Voting Rights

Holders of Common Stock have exclusive voting rights. Except as otherwise stated in the following three paragraphs, each share of Common Stock, irrespective of Series, is entitled to one vote on each matter submitted to a vote at a meeting of shareholders.

Holders of Series I shares of Common Stock are entitled to elect six directors. In voting for directors, each holder of Series I shares has the right to vote the number of shares held by him for six candidates, or to cumulate such shares and give one candidate as many votes as the number of his shares multiplied by six shall equal, or to distribute such votes on the same principle among any number of candidates not exceeding six. No Series I share may be voted for the election of directors if such vote is subject to the direction or control of a person ineligible to own or hold Series I shares. See "Restrictions on Ownership and Transfer of Shares", above.

Holders of Series II shares of Common Stock are entitled to elect six directors. In voting for directors, each holder of Series II shares has the right to cumulate such shares and give one candidate as many votes as the number of shares held by him multiplied by six shall equal, or to distribute such votes on the same principle among any number of candidates not exceeding three. Under the Act and the Articles of Incorporation no holder of Series II shares and no trustee for such a holder may vote, either directly or indirectly, through the votes of subsidiary or affiliated companies, nominees or any persons subject to his direction or control, for more than three candidates. The By-laws of the Corporation provide that, in the event that any holder of Series II shares or a trustee for such holder casts votes, either directly or indirectly, through subsidiary or affiliated companies, nominees, or persons subject to his direction or control, for more than three candidates, only the votes so cast for those three of such candidates who receive the highest number of the votes so cast shall be counted, and the votes so cast for any other such candidates shall not be counted. The By-laws also provide that an association, joint-stock company, trust, corporation or other entity shall be deemed to be a subsidiary of a communications common carrier, as defined above, if more than 50% of its shares entitled under normal circumstances to elect a majority of its board of directors or trustees are owned or controlled directly or indirectly by such carrier, and that any such entity shall be deemed to be an affiliated company of a communications common carrier if it is otherwise directly or indirectly subject to the control of, or is under direct or indirect common control with, such carrier.

No share of Common Stock, irrespective of Series, may be voted on any matter at a meeting of shareholders if, at the time of such meeting, the share is owned or held in violation of the Act or any regulation promulgated thereunder or in violation of the Articles of Incorporation or any regulation or determination made by the Board of Directors thereunder; and the Corporation may, in accordance with

The By-laws of the Corporation provide that, at any meeting of shareholders for the election of directors (a) a majority of the shares of Series I Common Stock entitled to vote thereat constitutes a quorum for the election of directors by holders of shares of such Series, and (b) a majority of shares of Series II Common Stock entitled to vote thereat constitutes a quorum for the election of directors by the holders of shares of such Series, provided that, with respect to each Series, if such quorum shall not have been attained within 30 days from the date of the meeting as originally called, one-third of the shares of such Series entitled to vote thereat constitutes a quorum for the purpose of election of directors by holders of shares of such Series. Except where a greater proportion is required by law, one-third of the total number of shares (Series I and Series II) entitled to vote thereat constitutes a quorum for the transaction of any business other than the election of directors.

It is the intention of the present Board of Directors, in the event that, upon completion of the distribution of the shares offered by this Prospectus, the aggregate number of shares of Common Stock held by authorized carriers constitutes substantially less than 50% of the total number of shares of Common Stock then outstanding, to submit to the Congress a request in substance to the effect that the Act be amended to provide that, as nearly as may be, the number of directors to be elected by shareholders which are authorized carriers (holders of Series II shares), and the number of directors to be elected by other shareholders (holders of Series I shares), shall be in proportion to the respective aggregate numbers of shares of Common Stock held by the holders of shares of each such Series.

#### Transfer Procedures

The Board of Directors is authorized to establish procedures with respect to the transfer of shares of Common Stock to enforce the limitations referred to under "Restrictions on Ownership and Transfer", above. Procedures established by the Board of Directors require that, in connection with each transfer of shares on the books of the Corporation, the transferee complete an application for transfer of the shares. Such application calls for information about the transferee's citizenship status, relationship with communications common carriers and other matters related to the limitations on ownership and transfer of shares of Common Stock. Such an application for transfer must also be completed by each person who purchases shares from any of the Underwriters.

Neither the Act nor the Articles of Incorporation define the respective rights, as between themselves, of the seller and purchaser of shares where, because of the restrictions on the ownership and transfer of shares, the purchaser is not entitled to have the shares transferred to him on the books of the Corporation. The respective rights of the seller and purchaser in such a case would be determined under the laws or other rules applicable to such sale. The Articles of Incorporation provide, however, that nothing in the provisions thereof limiting the ownership and transfer of shares shall be deemed to affect the right of the purchaser in such a case to transfer his interest in the shares to any person who, under the provisions of the Act and the Articles, lawfully may acquire such interest.

#### Miscellaneous

No conversion rights, preemptive rights, redemption rights or sinking fund provisions are applicable to the Common Stock. Shares of Common Stock offered hereby will be fully-paid and non-assessable.

Under the provisions of the Act, shares of Common Stock owned by an authorized carrier are not eligible to be included in the rate base of such carrier.

The Corporation will furnish to its shareholders annually a report containing certified financial statements.

Under the provisions of the Act, the Corporation is authorized to issue, in addition to shares of Common Stock without par value, non-voting securities, bonds, debentures, and other certificates of indebtedness as it may determine. The Articles of Incorporation at present provide for the issuance only of Common Stock without par value having the voting rights described above. The issuance of any securities other than the shares offered by this Prospectus, and the borrowing of moneys or assumption of any obligation in respect of securities of others, are subject to authorization by the FCC.

COMMUNICATIONS SATELLITE CORPORATION:

We have examined the financial statements of Communications Satellite Corporation listed below:

Statement of assets, preliminary survey, research, development, and organization expenses, and liabilities and capital, December 31, 1963.

Statement of cash receipts and disbursements for the period from February 1, 1963 (date of incorporation) to December 31, 1963.

Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the assets, preliminary survey, research, development, and organization expenses, and liabilities and capital of the Corporation at December 31, 1963 and the cash receipts and disbursements of the Corporation for the period from February 1, 1963 to December 31, 1963, in conformity with generally accepted accounting principles consistently applied.

HASKINS & SELLS

Washington, D. C., February 28, 1964

## COMMUNICATIONS SATELLITE CORPORATION

STATEMENT OF ASSETS, PRELIMINARY SURVEY, RESEARCH, DEVELOPMENT, AND ORGANIZATION EXPENSES, AND LIABILITIES AND CAPITAL December 31, 1963 and (Unaudited) March 31, 1964

ASSETS, AND PRELIMINARY SURVEY, RESEARCH, DEVELOPMENT, AND ORGANIZATION EXPENSES

DEVELOPMENT, AND ORGANIZATION EXPEN	ISES	36 1
	December 31, 1963	March 31, 1964 (Unaudited)
PROPERTY AT COST: Furniture, office equipment, and automobiles  Leaseholds	\$ 80,405 20,983	\$ 93,775 34,891
Total Less accumulated depreciation and amortization	101,388 14,192	128,666 20,504
Property—Net	87,196	108,162
Current Assets: Cash Advances and deposits Prepayments—Insurance, rent, etc.  Total Current Assets	246,807 3,500 6,285 ————————————————————————————————————	288,417 1,772 4,285 ————————————————————————————————————
TOOTHER OF ANIMALS STREET, ANIMALS STREET, STR	<u> </u>	
Other Assets	2,000	2,000
PRELIMINARY SURVEY, RESEARCH, DEVELOPMENT, AND ORGANIZATION Expenses (Note 1)	1,012,985	1,444,978
Total	\$1,358,773	\$1,849,614
LIABILITIES AND CAPITAL		
Capital—Common stock—authorized, 100 shares without par value, issued and outstanding, 14 shares. (Authorized shares increased to 10,000,100 shares subsequent to March 31, 1964)—See "Description of Common Stock"	\$ 1,400	\$ 1,400
Current Liabilities: Notes payable to banks (Note 2) Accounts payable Accrued interest Other (accrued salaries and payroll taxes accrued and withheld)	1,150,000 157,245 25,761 24,367	1,650,000 111,840 40,543 45,831
Total Current Liabilities	1,357,373	1,848,214
COMMITMENTS (Note 4) TOTAL	\$1,358,773	\$1,849,614
The reviews inner the automorphic are public, in specific automorphics while		

# COMMUNICATIONS SATELLITE CORPORATION

# STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

For the Period from February 1, 1963 (Date of Incorporation) to December 31, 1963 and (Unaudited) for the Three Months Ended March 31, 1964

MINT AND ORGANIZATION TEXTENSES Instrumed March	February 1, 1963 to December 31, 1963	Three month ended March 31, 1964 (unaudited)
Receipts:	12	13 ma urusaisas
Bank loans Sales of common stock Maturity of temporary investments (interest income has been deducted from interest expense)	1,400	\$ 500,000
	The state of the s	
Total Receipts	1,350,154	500,000
DISBURSEMENTS:	V 12 12 12 12 12 12 12 12 12 12 12 12 12	CORRERY ASSET
Purchases of furniture, office equipment and automobiles—net	80,405	12 462
Leasehold costs	20,983	13,462 13,908
Advances and deposits—net (credit)	3,500	(1,728)
repayments—Insurance, rent. etc.—net (credit)	6,285	(2,000)
Furchase of temporary investments	198,754	(2,000)
Other assets  Preliminary survey, research, development and organization expenses (Note 1)	2,000	
penses (Note 1)	1,012,985	121 000
	1,012,965	431,993
Total Disbursements (accrual basis)	1,324,912	455,635
Add accounts payable and accrued liabilities at beginning of period (settled by cash disbursements or continued as liabilities at end of period)		
Deduct amounts included above which have not involved cash disbursements and which are represented by the following at the end of the respective periods:		207,373
Accounts payable, accrued interest, accrued salaries, and pay-		
roll taxes accrued and withheld	(207,373)	(198,214)
	(14,192)	(6,404)
Total Disbursements (cash basis)	1,103,347	458,390
TET INCREASE IN CASH DURING PERIOD	246,807	41,610
ASH BALANCE AT BEGINNING OF PERIOD	LI marm' less?	246,807
ASH BALANCE AT END OF PERIOD	\$ 246,807	\$ 288,417

The accompanying Notes to Financial Statements are an integral part of this Statement.

#### COMMUNICATIONS SATELLITE CORPORATION

#### NOTES TO FINANCIAL STATEMENTS

December 31, 1963 and (Unaudited) March 31, 1964

#### . Preliminary Survey, Research, Development, and Organization Expenses

These amounts represent expenditures for organization matters, hearings and negotiations, research and development, and other corporate activities incident to the formation of a program for the creation of an international communications satellite system. The amounts for the three months ended March 31, 1964 include legal and accounting fees and printing costs approximating \$25,000 in connection with the proposed sale of capital stock contemplated by this Prospectus; and such amounts will constitute part of the capital stock expense of the issue. It is anticipated that as or after the system is developed, the expenditures described in this note, as well as additional expenditures of generally similar character, will be transferred to utility plant, amortized against income of future years, or otherwise disposed of as the Federal Communications Commission may approve or direct. A summary of these expenditures for the periods indicated is as follows:

the periods indicated is as follows:	February 1, 1963 (Date of Incorporation) to December 31, 1963	Three Months Ended March 31, 1964 (Unaudited)	Total
Organization expenses (legal fees and other expenses prior to incorporation)	\$ 81,692		\$ 81,692
Salaries of officers and employees	459,381	\$ 234,923	694,304
Fees of directors	23,600	5,200	28,800
Legal, accounting, and other professional fees	70,145	38,323	108,468
Travel and related expenses	36,316	27,294	63,610
Office rent and maintenance	33,783	18,921	52,704
Printing, stationery, and office expenses	34,182	25,038	59,220
Employees' relocation expenses and insurance benefit premiums	22,046	9,678	31,724
Technical consultants, data processing costs, and contract services incident to research program	173,457	31,641	205,098
Interest on notes payable (net of \$1,246 interest received on temporary investments)	24,514	14,783	39,297
Taxes and licenses	13,208	9,116	22,324
Depreciation and amortization	14,192	6,404	20,596
Other expenditures	26,469	10,672	37,141
Total	\$1,012,985	\$ 431,993	\$1,444,978

#### 2. Notes Payable to Banks

The notes payable to banks represent borrowings under a commitment of the lending banks to make loans to the Corporation, not exceeding \$5,000,000, as the Corporation may from time to time request. Borrowings under the agreement are subject to specific authorizations of the Federal Communications

Commission. The Corporation has been authorized by the Federal Communications Commission to borrow \$1,900,000. Orders of the Commission provide that funds obtained from such borrowings may not be used for operating expenses subsequent to June 19, 1964, without prior authorization of the Commission. Under the loan agreement, as amended and supplemented in February 1964, the commitment of the banks expires on June 30, 1964. The notes also mature on that date, subject to the provision of the Corporation of proceeds of the sale of shares of its capital stock in connection with the initial offering of such shares.

## 3. FEDERAL COMMUNICATIONS COMMISSION

The Corporation is subject to regulation by the Federal Communications Commission as explained under "Regulation". The Federal Communications Commission has not approved or reviewed the accounting procedures employed by the Corporation to date. The inclusion of the financial statements in this Prospectus should not be regarded as approval by the Federal Communications Commission as to the accuracy of any material therein nor of the accounting procedures used. The Federal Communications Commission may prescribe a system of accounts for the Corporation which may require modification of existing accounting procedures.

#### 4. COMMITMENTS AND GENERAL

The Corporation has certain commitments in connection with its program for the development and establishment of a commercial communications satellite system. For a summary of the program, the range of estimated costs, and significant contract information, see "Program of the Corporation". The Corporation also has entered into short-term leases, with renewal options, for office space. Reference is also made to the matters referred to under "The Venture and Its Risks".

#### UNDERWRITING

The Underwriters named below, acting through their Representatives named on the cover of this Prospectus, have entered into a Purchase Contract with the Corporation pursuant to which they have severally agreed, subject to the terms and conditions of the Purchase Contract, to purchase from the Corporation the number of shares of Common Stock set forth below opposite their respective names. Under certain circumstances involving default of Underwriters, less than all of such shares of Common Stock may be purchased by the Underwriters. Under certain circumstances the commitments of non-defaulting Underwriters may be increased. Under the provisions of the Purchase Contract the obligation of the Underwriters to purchase the shares of Common Stock specified in the Purchase Contract is subject, among other things, to the receipt by the Corporation from authorized carriers of the purchase price for at least 90% of the shares of Common Stock subscribed for by authorized carriers, after applying the allocation formula set forth under "Carrier Subscription Matters".

Name of Underwriter	Address of Underwriter	Number of Shares to be Purchased
Street, New York, Parkidishir vengeno dalam	been 8,000 million en cel en menos pero per men Alana	87 3 1 4 M (SD ) 6
Merrill Lynch, Pierce, Fenner & Smith Incorporated	70 Pine Street, New York 5, N.Y.	100,000
Blyth & Co., Inc	14 Wall Street, New York 5, N.Y.	100,000
The First Boston Corporation	20 Exchange Place, New York, N. Y. 10005	100,000
Kidder, Peabody & Co. Incorporated	20 Exchange Place, New York 5, N.Y.	100,000
Kuhn, Loeb & Co. Incorporated	30 Wall Street, New York 5, N.Y.	100,000
Lazard Frères & Co	44 Wall Street, New York 5, N. Y.	100,000
Lehman Brothers	One William Street, New York 4, N. Y.	100,000
Carl M. Loeb, Rhoades & Co	42 Wall Street, New York 5, N. Y.	100,000
Paine, Webber, Jackson & Curtis	25 Broad Street, New York 4, N.Y.	100,000
White, Weld & Co. Incorporated	20 Broad Street, New York 5, N. Y.	100,000
Dean Witter & Co	45 Montgomery Street, San Francisco 6, California	100,000
Eastman Dillon, Union Securities & Co	One Chase Manhattan Plaza, New York 5, N.Y.	50,000
Glore, Forgan & Co	45 Wall Street, New York 5, N. Y.	50,000
Harriman Ripley & Co., Incorporated	60 Broad Street, New York 4, N. Y.	50,000
Hornblower & Weeks	1 Chase Manhattan Plaza, New York 5, N.Y.	50,000
Smith, Barney & Co. Incorporated	20 Broad Street, New York 5, N.Y.	50,000
Stone & Webster Securities Corporation	90 Broad Street, New York 4, N. Y.	50,000
Bache & Co	36 Wall Street, New York 5, N. Y.	29,000
Bear, Stearns & Co	One Wall Street, New York 5, N.Y.	29,000
A. G. Becker & Co. Incorporated	120 South La Salle Street, Chicago 3, Illinois	29,000
Clark, Dodge & Co. Incorporated	61 Wall Street, New York 5, N.Y.	29,000
Dominick & Dominick, Incorporated	14 Wall Street, New York 5, N. Y.	29,000
Drexel & Co	1500 Walnut Street, Philadelphia 1, Pennsylvania	29,000
Hallgarten & Co	44 Wall Street, New York 5, N.Y.	29,000
Hayden, Stone Incorporated	25 Broad Street, New York, N. Y. 10004	29,000
Hemphill, Noyes & Co	8 Hanover Street, New York 4, N. Y.	29,000
E. F. Hutton & Company Inc	One Chase Manhattan Plaza, New York 5, N.Y.	29,000

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20 51

Name of Underwriter	Address of Underwriter	Number of Shares to be Purchase
W. E. Hutton & Co	14 W-11 Carry N. V. Carry	
Lee Higginson Corporation	TOTAL TOTAL TOTAL TOTAL	29,000
F. S. Moseley & Co.		29,000
Reynolds & Co.		29,000
Shearson, Hammill & Co.		29,000
Wertheim & Co.		29,000
Alex Brown & Cons	1 Chase Manhattan Plaza, New York 5, N. Y.	29,000
Alex. Brown & Sons	135 East Baltimore Street, Baltimore 2. Maryland	25,500
Equitable Securities Corporation	I wo Wall Street, New York 5, N. Y.	25,500
Goodbody & Co.	2 Broadway, New York 4, N. Y.	25,500
Johnston, Lemon & Co.	Southern Bldg., Washington 5, D. C.	
Ladenburg, Thalmann & Co.	25 Broad Street, New York 4, N. Y.	25,500
R. W. Pressprich & Co	80 Pine Street, New York 5, N. Y.	25,500
L. F. Rothschild & Co	120 Broadway, New York 5, N. Y.	25,500
Salomon Brothers & Hutzler	Sixty Wall Street, New York, N. Y. 10005	25,500
Shields & Company Incorporated	44 Wall Street New York, N. Y. 10005	25,500
F. S. Smithers & Co	44 Wall Street, New York 5, N. Y.	25,500
Spencer Trask & Co	45 Wall Street, New York 5, N. Y.	25,500
Tucker, Anthony & R. L. Day	60 Broad Street, New York, N. Y. 10004	25,500
G. H. Walker & Co. Incorporated	120 Broadway, New York 5, N. Y.	25,500
Wood, Struthers & Co., Inc.	45 Wall Street, New York 5, N. Y.	25,500
Allen & Company	20 Exchange Place, New York 5, N. Y.	25,500
Allen & Company	30 Broad Street, New York 4, N. Y.	23,500
American Securities Corporation	25 Broad Street, New York 4, N. Y.	23,500
Bacon, Whipple & Co.	135 South La Salle Street, Chicago 3, Illinois	23,500
Robert W. Baird & Co., Incorporated	731 North Water Street, Milwaukee 1, Wisconsin	Act some . Sand men
Baker, Weeks & Co	One Wall Street, New York 5, N. Y.	23,500
William Blair & Company	135 South La Salle Street, Chicago 3, Illinois	23,500
Blair & Co., Granbery, Marache Incorporated	20 Broad Street, New York 5, N. Y.	23,500
Blunt Ellis & Simmons	111 West Monroe Street, Chicago 3, Illinois	23,500
. C. Bradford & Co	414 Union Street, Unicago 3, Illinois	23,500
. M. Dain & Co., Inc.	414 Union Street, Nashville 3, Tennessee	23,500
Dick & Merle-Smith,	110 South Sixth Street, Minneapolis 2, Minnesota	23,500
R. S. Dickson & Company, Incorporated	48 Wall Street, New York 5, N. Y.	23,500
Eberstadt & Co	30 Broad Street, New York 4, N. Y.	23,500
Setabrook & Co	65 Broadway, New York 6, N. Y.	23,500
Estabrook & Co	15 State Street, Boston 9, Massachusetts	23,500
W. C. Langley & Co	115 Broadway, New York 6, N. Y.	23,500
McDonald & Company	Union Commerce Bldg., Cleveland 14, Ohio	23,500
New York Securities Co	52 Wall Street, New York 5, N. Y.	23,500
The Ohio Company	51 North High Street, Columbus 15, Ohio	
iper, Jaffray & Hopwood	115 South Seventh Street, Minneapolis 2, Minnesota	23,500
chwabacher & Co	100 Montgomery Street, San Francisco 4, California	23,500
Villiam R. Staats & Co. Incorporated	640 South Spring Street, Los Angeles 14, California	23,500
Ball, Burge & Kraus	1414 Union Commerce Place Cl. 1 144 Cl.	23,500
. Barth & Co	1414 Union Commerce Bldg., Cleveland 14, Ohio	18,500
	404 Montgomery Street, San Francisco, California 94104	40.700
urnham and Company	60 Broad Street, New York 4, N. Y.	18,500
offin & Burr	64 Wall Street New York 5 N. Y.	18,500
ourts & Co	64 Wall Street, New York 5, N. Y.	18,500
Dempsey-Tegeler & Co., Inc	11 Marietta Street, N.W., Atlanta 3, Georgia	18,500
" C 3 C 1 . C	1000 Locust Street, St. Louis 1, Missouri	18,500
Irst of Michigan Corporation		
First of Michigan Corporation Solger, Nolan, Fleming & Co. Incorporated	2 Wall Street, New York 5, N. Y. 725 15th Street, N.W., Washington 5, D. C.	18,500

Number of States		Number of Shares to be
Name of Underwriter	Address of Underwriter	Purchased
Fulton, Reid & Co., Inc	2100 East Ohio Bldg., Cleveland 14, Ohio	18,500
Robert Garrett & Sons	South & Redwood Streets, Baltimore 3, Maryland	18,500
Hayden, Miller & Co.	Union Commerce Bldg., Cleveland 14, Ohio	18,500
H. Hentz & Co	72 Wall Street, New York 5, N. Y.	18,500
Hirsch & Co., Incorporated	25 Broad Street, New York 4, N. Y.	18,500
Irving Lundborg & Co	310 Sansome Street, San Francisco 4, California	18,500
McDonnell & Co. Incorporated	120 Broadway, New York 5, N. Y.	18,500
Merrill, Turben & Co., Inc	1612 Union Commerce Bldg., Cleveland 14, Ohio	18,500
Model, Roland & Co	120 Broadway, New York 5, N. Y.	18,500
Moore, Leonard & Lynch	Union Trust Bldg., Pittsburgh 19, Pennsylvania	18,500
Newhard, Cook & Co	400 Olive Street, St. Louis 2, Missouri	18,500
Reinholdt & Gardner	400 Locust Street, St. Louis 2, Missouri	18,500
Riter & Co.	40 Wall Street, New York 5, N. Y.	18,500
The Robinson-Humphrey Company, Inc	2000 Rhodes-Haverty Bldg., Atlanta, Georgia 30303	18,500
Shuman, Agnew & Co	155 Sansome Street, San Francisco 4, California	18,500
Singer, Deane & Scribner	Union Trust Bldg., Pittsburgh 19, Pennsylvania	18,500
Stroud & Company, Incorporated	123 South Broad Street, Philadelphia 9, Pennsylvania	
Watling, Lerchen & Co	Ford Bldg., Detroit 26, Michigan	18,500
Arnhold and S. Bleichroeder, Inc	30 Broad Street, New York 4, N. Y.	12,500
Auchincloss, Parker & Redpath	Two Broadway, New York 4, N. Y.	12,500
Baker, Watts & Co	Calvert & Redwood Streets, Baltimore 3, Maryland	12,500
Bateman, Eichler & Bingham Incorporated	453 South Spring Street, Los Angeles 13, California	12,500
Boettcher and Company	828 17th Street, Denver 2, Colorado	12,500
Bosworth, Sullivan & Company, Inc	660-17th Street, Denver 2, Colorado	12,500
Butcher & Sherrerd	1500 Walnut Street, Philadelphia 2, Pennsylvania	12,500
Chapman, Howe & Co	208 South La Salle Street, Chicago 4, Illinois	12,500
Julien Collins & Company	105 South La Salle Street, Chicago 3, Illinois	12,500
Crowell, Weedon & Co	629 South Spring Street, Los Angeles 14, California	12,500
Eppler, Guerin & Turner, Inc	1600 Fidelity Union Tower, Dallas 1, Texas	12,500
Fahnestock & Co	65 Broadway, New York 6, N. Y.	12,500
First California Company Incorporated	300 Montgomery Street, San Francisco, California 94104	12,500
First Southwest Company	Mercantile Bank Bldg., Dallas 1, Texas	12,500
Halle & Stieglitz	52 Wall Street, New York 5, N. Y.	12,500
The Illinois Company Incorporated	231 South La Salle Street, Chicago, Illinois 60604	12,500
The Johnson, Lane, Space, Smith Corporation	101 East Bay Street, Savannah, Georgia	12,500
Laird & Company, Corporation	Wilmington Trust Bldg., Wilmington 99, Delaware	12,500
Laird, Bissell & Meeds	120 Broadway, New York 5, N. Y.	12,500
Legg & Co	22 Light Street, Baltimore 3, Maryland	12,500
Lester, Ryons & Co	623 South Hope Street, Los Angeles 17, California	12,500
Loewi & Co. Incorporated	225 East Mason Street, Milwaukee 2, Wisconsin	12,500
A. E. Masten & Co	First National Bank Bldg., Pittsburgh 22, Pennsylvania	12,500
McCormick & Co	135 South La Salle Street, Chicago 3, Illinois	12,500
The Milwaukee Company	207 East Michigan Street, Milwaukee 2, Wisconsin	12,500
Mitchum, Jones & Templeton, Incorporated	510 South Spring Street, Los Angeles 13, California	12,500
Posic N. dansat Company	1000 Second Avenue, Seattle, Washington 98104	12,500
Pacific Northwest Company	1200 Mercantile Dallas Bldg., Dallas 1, Texas	12,500
Rauscher, Pierce & Co., Inc	2 Buhl Bldg., Detroit 26, Michigan	12,500

		Number	Musder		Numb
ed at		of Shares	modifie	C	of Sha
Name of Underwriter	Address of Underwriter	to be Purchased	Name of Underwriter	Address of Underwriter	to be
Rotan, Mosle & Co	1510 Bank of the Southwest Bldg. Houston 2	20.000	come Street San Francisco & California	21" North County Church Ct I ouis 2 Missouri	8,00
Stein Bros & Dones I.	Texas	12,500	I. M. Simon & Co	315 North Fourth Street, St. Louis 2, Missouri	8,00
Stein Bros. & Boyce, Inc	One Charles Center, Baltimore 1, Maryland	12,500	Stern, Frank, Meyer & Fox	Union Bank Bldg., Los Angeles, California 90014	
		12,500	J. S. Strauss & Co	155 Montgomery Street, San Francisco 4, California	8,00
Stifel, Nicolaus & Company, Incorporated		12,500	C. E. Unterberg, Towbin Co	61 Broadway, New York, N. Y. 10006	8,0
0.00000.0000000000000000000000000000000	ISIA Pison Dida C T		Van Alstyne, Noel & Co	40 Wall Street, New York 5, N.Y.	8,0
outro & Co	160 Montage Ct. C. S.	12,500	Wagenseller & Durst, Inc	626 South Spring Street, Los Angeles 14, California	8,0
Inderwood, Neuhaus & Co. Incorporated	Houston Club Bldg., Houston 2, Texas	A A CASH CARE OF COMME	Adams & Peck	120 Broadway, New York, N. Y. 10005	6,5
veeden & Co. Incorporated	25 Broad Street, New York 4, N. Y.	12,500	Bioren & Co	1424 Walnut Street, Philadelphia 2, Pennsylvania	6,5
inslow, Conu & Stetson Incorporated.	26 Broadway Now Val 4 37 37	12,500	Boenning & Co	The Alison Bldg., Rittenhouse Square,	
abbott, Proctor & Paine	Oll Foot Main Co. D. 1	12,500	asualty Tower, Mashviller & Tennessee man Sisti	Philadelphia 3, Pennsylvania	6,5
nderson & Strudwick		8,000	Burgess & Leith	53 State Street, Boston 9, Massachusetts	6,5
rush, Slocumb & Co. Inc	913 East Main Street, Richmond 12, Virginia	8,000	Chace, Whiteside & Winslow, Inc	24 Federal Street, Boston 10, Massachusetts	6,5
arolina Securities Corporation		8,000	Chaplin, McGuiness & Co	Peoples Bank Bldg., Pittsburgh 22, Pennsylvania	6,5
ichard W. Clarke Corporation		8,000	Clayton Securities Corporation	147 Milk Street, Boston 9, Massachusetts	6,
ommon Dann & Co	535 Fifth Avenue, New York 17, N. Y.	8,000	Cunningham, Schmertz & Co., Inc	First National Bank Bldg., Pittsburgh 22, Pennsylvani	ia 6,5
ommon, Dann & Co	502 Marine Trust Bldg., 237 Main Street,		Davenport & Co	1113 East Main Street, Richmond 19, Virginia	6,
poley & Company	Buffalo, N. Y. 14203	8,000	Shelby Cullom Davis & Co	116 John Street, New York 38, N.Y.	6,.
allas Union Securities Co. In-	100 Pearl Street, Hartford 4, Connecticut	8,000	Elkins, Morris, Stokes & Co	428 Land Title Bldg., Philadelphia 10, Pennsylvania	6,
allas Union Securities Co., Inc.	1001 Adolphus Tower, Dallas 2, Texas	8,000	Evans & Co. Incorporated	300 Park Avenue, New York 22, N. Y.	6.
avis, Skaggs & Co	111 Sutter Street, San Francisco 4, California	8,000	W. D. Gradison & Co.	408 Dixie Terminal Bldg., Cincinnati 2, Ohio	6,
eHaven & Townsend, Crouter & Bodine	1500 Chestnut Street, Philadelphia 2, Pennsylvania	8,000		135 South La Salle Street, Chicago 3, Illinois	6,
ewar, Robertson & Pancoast	Milam Bldg., San Antonio 5, Texas	8,000	Hickey & Co	621 South Spring Street, Los Angeles 14, California	6,
ittmar & Company, Inc	201 North St. Mary's Street, San Antonio 6, Texas		Hill Richards & Co., Incorporated		6,
reyfus & Co	Two Broadway, New York 4, N. Y.	8,000	Hulme, Applegate & Humphrey, Inc	586 Union Trust Bldg., Pittsburgh 19, Pennsylvania	6.
ddleman, Pollok & Fosdick Inc	440 Bank of the Southwest Bldg., Houston 2, Texas	8,000	Indianapolis Bond and Share Corporation	120 East Market Street, Indianapolis 4, Indiana	6,5
G. Edwards & Sons	409 North Eighth Street, St. Louis 1, Missouri	8,000	Ingalls & Snyder	100 Broadway, New York 5, N. Y.	
worthy & Co., Incorporated	111 Sutter Street, San Francisco 4, California	8,000	Kalman & Company, Inc	136 Endicott Bldg., St. Paul 1, Minnesota	6,.
nanuel, Deetjen & Co	120 Broadway, New York 5, N. Y.	8,000	Kay, Richards & Company	Union Trust Bldg., Pittsburgh 19, Pennsylvania	6,
hey, Clark & Co	1737 Union Commerce Bldg., Cleveland 14, Ohio	8,000	Mason-Hagan, Inc	1017 East Main Street, Richmond 10, Virginia	6,
ulkner, Dawkins & Sullivan	60 Broad Street, New York 4, N. Y.	8,000	McKelvy & Company	1146 Union Trust Bldg., Pittsburgh 19, Pennsylvania	
rris & Company	611 Fifteenth Street N W W 17.	8,000	Middendorf, Colgate & Co	51 Broad Street, New York 4, N. Y.	6,
egory & Sons	611 Fifteenth Street, N. W., Washington 5, D. C.	8,000	Newburger, Loeb & Co	5 Hanover Square, New York 4, N. Y.	6,
allowell, Sulzberger, Jenks, Kirkland & Co	40 Wall Street, New York 5, N. Y.	8,000	Pierce, Wulbern, Murphey, Inc	222 West Adams Street, Jacksonville 1, Florida	6,
	Philadelphia National Bank Bldg., Philadelphia 7, Pennsylvania		Wm. E. Pollock & Co., Inc	45 Wall Street, New York 5, N. Y.	6,
J. B. Hilliard & Son	419 West Jefferson Street, Louisville 2, Kentucky	8,000	Russ & Company, Incorporated	Alamo National Bldg., San Antonio, Texas	6,
oward, Weil, Labouisse, Friedrichs and Company	211 Carondelet Street New Out - I	8,000	Scherck, Richter Company, Inc	408 Olive Street, St. Louis, Missouri 63102	6,
nney, Battles & E. W. Clark, Inc	211 Carondelet Street, New Orleans, Louisiana 70130 Central-Penn National Bank Bldg.,	8,000	Schmidt, Roberts & Parke	123 South Broad Street, Philadelphia 9, Pennsylvania	6,
	1401 Walnut Street, Philadelphia 2, Pennsylvania	0.000		P. O. Box 1575, Richmond 13, Virginia	6,
ward D. Jones & Co	101 North Fourth Street, St. Louis 2, Missouri	8,000	Scott & Stringfellow	40 Wall Street, New York 5, N. Y.	6,
les, Kreeger & Co	1625 Eye Street, N. W., Washington 6, D. C.	8,000	Silberberg & Co	509 Olive Street, St. Louis 1, Missouri	6,
	1400 Fast Ohio Plds Claud 114 Ohio	8,000	Stix & Co		6,
1 11 0 C	1400 East Ohio Bldg., Cleveland 14, Ohio	8,000	Thomas & Company	305 Porter Bldg., Pittsburgh 19, Pennsylvania	A PROPERTY OF
1 D 3(D	738 15th Street, N. W., Washington 5, D. C.	8,000	Townsend, Dabney & Tyson	10 Post Office Square, Boston, Massachusetts 02105	6,
ad, Miller & Co	1100 Buhl Bldg., Detroit, Michigan 48226	8,000	H. C. Wainwright & Co	60 State Street, Boston 1, Massachusetts	6,
	Charles and Chase Streets, Baltimore 1, Maryland	8,000	J. C. Wheat & Co	1001 East Main Street, Richmond 19, Virginia	6,
D ' 0 C 7	231 South La Salle Street, Chicago 4, Illinois	8,000	Arthur Wiesenberger & Co	61 Broadway, New York 6, N. Y.	6,
	Bank of the Southwest Bldg., Houston 2, Texas	8,000	Yarnall, Biddle & Co	1528 Walnut Street, Philadelphia 2, Pennsylvania	6,
anancy, wens & company	135 South La Salle Street, Chicago 3, Illinois	8,000	Abraham & Co.	120 Broadway, New York 5, N. Y.	5,
o C	1401 Walnut Street, Philadelphia 2. Pennsylvania	8,000	Almstedt Brothers	425 West Market Street, Louisville 2, Kentucky	5,
1 6.	6 Central Row, Hartford, Connecticut 06103	8,000	Arthurs, Lestrange & Co	2 Gateway Center, Pittsburgh 22, Pennsylvania	5,
muers, Stiver & Co	One Terminal Tower, Cleveland 13, Ohio	8,000	Barret, Fitch, North & Co. Incorporated	111 West Tenth Street, Kansas City 5, Missouri	5,
	209 Church Street, New Haven 7, Connecticut				

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Name of Underwriter	Address of Underwriter	Number of Share to be Purchase
Birr, Wilson & Co., Inc.	155 Company Ct. 1 C. T.	- ur chase
Blewer, Glynn & Co	1536 Deiland F. 1	5,000
George D. B. Bonbright & Co	100 Day 111 D	5,000
Branch, Cabell & Co	o, cricotel 17, 14, 1.	5,000
P. W. Brooks & Co. Incorporated.		5,000
Caldwell Phillips, Inc		5,000
C. F. Cassell & Co., Inc.		5,000
Childs Securities Company	114 I hird Street, N.E., Charlottesville, Virginia	5,000
City Securities Corporation.	One Liberty Street, New York 5, N. Y.	5,000
City Securities Corporation.	Circle Tower, Indianapolis 4. Indiana	5,000
Clark, Landstreet & Kirkpatrick, Inc.	Life & Casualty Tower, Nashville 3, Tennessee	
Collin, Norton & Co.	Gardner Bldg., 506 Madison Avenue, Toledo 4, Ohio	5,000
C. C. Collings and Company, Inc	Fidelity-Philadelphia Trust Bldg., Philadelphia 9, Pennsylvania	5,000
Craigie & Co., Inc	616 E. Main Street, Richmond, Virginia 23215	5,000
Curnss, House & Co	Union Commerce Bldg., Cleveland 14, Ohio	5,000
Doolittle & Co	Liberty Bank Bldg., Buffalo 2, N. Y.	5,000
Field, Richards & Co	1107 Central Trust Bank Tower, Cincinnati, Ohio 45202	5,000
First Nebraska Securities Corporation	1001 O Street, Lincoln 1, Nebraska	5,000
First Southeastern Company	103 Twelfth Street Call 1 C	5,000
Freening & Co	103 Twelfth Street, Columbus, Georgia	5,000
Fridley & Frederking	120 South La Salle Street, Chicago 3, Illinois	5,000
Funk, Hobbs & Hart, Inc	617 Texas National Bank Bldg., Houston 2, Texas 1012 National Bank of Commerce Bldg.,	5,000
Alester G. Furman Co., Inc	San Antonio 5, Texas South Carolina National Bank Bldg., Greenville, South Carolina	5,000
Fusz-Schmelzle & Co., Inc		5,000
Greene & Ladd	522 Olive Street, St. Louis 1, Missouri	5,000
Hamershlag, Borg & Co	Third National Bldg., Dayton 2, Ohio	5,000
Hanrahan & Co., Inc	25 Broad Street, New York 4, N. Y.	5,000
Harrison & Co.	332 Main Street, Worcester 8, Massachusetts	5,000
Hess, Grant & Remington Incorporated	123 South Broad Street, Philadelphia 9 Pennsylvania	5,000
I H Hileman & Co. Inc.	123 South Broad Street, Philadelphia 9 Pennsylvania	5,000
J. H. Hilsman & Co., Inc.	Citizens & Southern Bldg., Atlanta 1 Georgia	5,000
Interstate Securities Corporation	Johnston Bldg., Charlotte 2. North Carolina	
Investment Corporation of Norfolk	215 East Plume Street, Norfolk 10, Virginia	5,000
Kenower, MacArthur & Co	Ford Bldg., Detroit 26, Michigan	5,000
The Kentucky Company	320 South Fifth Street, Louisville 2, Kentucky	5,000
Cirkpatrick-Pettis Company	540 Omaha National Bank Bldg., Omaha, Nebraska	5,000
Conlineyer & Co	217 Carondelet Street, New Orleans 30, Louisiana	5,000
Lentz, Newton & Co	Alamo National Bldg San And in The	5,000
5. D. Lunt & Co	Alamo National Bldg., San Antonio 5, Texas	5,000
V. L. Lyons & Co	906 Marine Trust Bldg., Buffalo 3, N. Y.	5,000
D. B. Marron & Co., Incorporated	235 South Fifth Street, Louisville 2, Kentucky	5,000
Aason Brothers	03 Wall Street, New York, N. Y. 10005	5,000
McCarley & Company, Inc	1130 First Western Bldg., Oakland 12, California 35 Page Avenue, P. O. Box 14, Asheville,	5,000
AcCourtney-Breckenridge & Company	North Carolina	5,000
Ailburn, Cochran & Company, Inc	1030 Boatmen's Bank Bldg., St. Louis 2, Missouri	5,000
	110 East First Street, Wichita 2, Kansas	5,000
furch & Co., Inc.		
Aurch & Co., Inc	330 Hanna Bldg., Cleveland 15. Ohio	
V. H. Newbold's Son & Co	330 Hanna Bldg., Cleveland 15, Ohio 1517 Locust Street, Philadelphia 2, Pennsylvania 30 Broad Street, New York 4, N. Y.	5,000 5,000

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Number of Shares			Number of Shares to be Purchased
Purchased	Name of Underwriter	Address of Underwriter	urchased
Charles A.	Parcells & Co	639 Penobscot Bldg., Detroit 26, Michigan	5,000
	sen, Waeckerle, Adams & Purcell, Inc	1012 Baltimore Avenue, Kansas City 5, Missouri	5,000
	& Co	23 West 10th Street, Kansas City 5, Missouri	5,000
Powell, Kis	stler & Co	110 Old Street, Fayetteville, North Carolina	5,000
	Co	200 Second Street, N.W., Albuquerque, New Mexico	5,000
~	ger, Hughes & Co., Inc	20 North Meridian Street, Indianapolis 4, Indiana	5,000
	0	One Wall Street, New York 5, N. Y.	5,000
	ne & Co	123 South Broad Street, Philadelphia 9, Pennsylvania	
	and Lukens	909 Union Trust Bldg., Washington 5, D. C.	5,000
	Renshaw	209 South La Salle Street, Chicago 4, Illinois	5,000
	inston & Co., Incorporated	1300 Southwest Tower, Houston, Texas 77002	5,000
	y & Co., Inc	45 Exchange Street, Rochester 14, N. Y.	5,000
	Company	Republic National Bank Bldg., Dallas 1, Texas	5,000
	Bernet & Hickman, Inc	1505 Elm Street, Dallas 1, Texas	5,000
	1 & Mayer	Security Savings Bldg., Cincinnati 2, Ohio	5,000
	Emery & Company, Inc	1115-1117 Plaza Bldg., Pittsburgh 19, Pennsylvania	5,000
	Nair Incorporated	829 Jefferson Avenue, Redwood City, California	5,000
	ore & Co	509 Olive Street, St. Louis 1, Missouri	5,000
	Campbell, Waterman Co	1740 Washington Bldg., Seattle 1, Washington	5,000
	er & Co	120 Broadway, New York, N. Y. 10005	5,000
	ee & Leach, Inc	First National Bldg., Birmingham 3, Alabama	5,000
Stewart, E	ubanks, Meyerson & Co	216 Montgomery Street, San Francisco 4, California	5,000
Storz-Wac	hob-Bender Co	3624 Farnam Street, Omaha, Nebraska 68131	5,000
Strader an	d Company, Incorporated	502 Peoples National Bank Bldg., Lynchburg, Virginia	
Suplee, Ye	atman, Mosley Co. Incorporated	1500 Walnut Street, Philadelphia 2, Pennsylvania	5,000
Sutro Bros	s. & Co	80 Pine Street, New York 5, N. Y.	5,000
	artwright & Co	Huntington Bank Bldg., Columbus 15, Ohio	5,000
Trubee, Co	ollins & Co	M. & T. Bldg., Buffalo 2, N. Y.	5,000
Uhlmann &	& Co., Inc	141 West Jackson Blvd., Chicago 4, Illinois	5,000
	Chisholm & Co., Inc	One Bull Street, Savannah, Georgia	5,000
Willis, Ker	nny & Ayres, Incorporated	205 West Franklin Street, Richmond 20, Virginia	5,000
Woodcock,	Moyer, Fricke & French, Inc	123 South Broad Street, Philadelphia 9, Pennsylvania	a 5,000
Wyatt, Ne	al & Waggoner	First National Bank Bldg., Atlanta 3, Georgia	5,000
	itner & Woods	819 Pine Street, St. Louis 1, Missouri	5,000
	V. York & Co., Inc	530 Hamilton Street, Allentown, Pennsylvania	5,000
Zilkha Cor	poration	120 Broadway, New York, N. Y. 10005	5,000
	n, Smith & Co	30 Broad Street, New York 4, N. Y.	3,500
	Co., Inc	Starks Bldg., Louisville 2, Kentucky	
Allison-W	illiams Company	Northwestern Bank Bldg., Minneapolis 2, Minnesota	3,500
Amott, Ba	ker & Co., Incorporated	150 Broadway, New York 38, N. Y.	5,500
Austin, Do	bbins & Calvert	National Bank of Commerce Bldg., San Antonio 5, Texas	3,500
Dougue	ner, Downing & Co	Mercantile Trust Bldg., Baltimore 2, Maryland	3,500
Bingham	Sheldon & Co	735 North Water Street, Milwaukee 2, Wisconsin	3,500
M H D:	shop & Co	Northwestern Bank Bldg., Minneapolis 2, Minnesota	3,500
Blaine &	Company, Inc	1421 Chestnut Street, Philadelphia,	
Diame & (	Company, mc	Pennsylvania 19102	3,500
E. D. Boy	rnton & Co., Inc	111 Broadway, New York 6, N. Y.	3,500
	heridan, Bogan & Co., Inc	2 Penn Center Plaza, Philadelphia 2, Pennsylvania	3,500
	isle & Marshall	Turks Head Bldg., Providence 3, Rhode Island	3,500

Name of Underwriter		Number of Shares to be Purchased
Nugent & Igoe	592 Main Street, East Orange, New Jersey	3,500
Pflueger & Baerwald	Mills Bldg., San Francisco 4, California	3,500
Pyne, Kendall & Hollister	60 Wall Street, New York, N. Y. 10005	3,500
Quail & Co., Inc	Davenport Bank Bldg., Davenport, Iowa	3,500
Rambo, Close & Kerner Incorporated	1518 Locust Street, Philadelphia 2, Pennsylvania	3,500
Rankin & Co.	53 Forsyth St. N.W., Atlanta, Georgia 30303	3,500
Rosenthal & Co	40 Wall Street, New York 5, N. Y.	3,500
Roulston & Company	1010 Euclid Avenue, Cleveland 15, Ohio	3,500
Earl M. Scanlan & Co	Western Federal Bldg., Seventeenth at California, Denver 2, Colorado	3,500
Scharff & Jones, Inc	140 Carondelet Street, New Orleans 12, Louisiana	3,500
Schweickhardt & Company, Inc	Hibernia Bldg., New Orleans 12, Louisiana	3,500
H. B. Shaine & Co. Inc	111 Pearl Street, N.W., Grand Rapids 2, Michigan	3,500
Smith, Hague & Company	539 Penobscot Bldg., Detroit 26, Michigan	3,500
Starkweather & Co	115 Broadway, New York 6, N. Y.	3,500
Sterling, Grace & Co	39 Broadway, New York 6, N. Y.	3,500
Taylor and Company	439 North Bedford Drive, Beverly Hills, California	3,500
Taylor, Rogers & Tracy Inc	105 South La Salle Street, Chicago 3, Illinois	3,500
Burton J. Vincent & Co	105 South La Salle Street, Chicago 3, Illinois	3,500
White & Company Incorporated	506 Olive Street, St. Louis, Missouri 63101	3,500
C. T. Williams & Company, Inc	Fidelity Bldg., Baltimore 1, Maryland	3,500
F. J. Winckler Co	1966 Penobscot Bldg., Detroit 26, Michigan	3,500
Woodard-Elwood & Company	1115 First National Bank Bldg., Minneapolis 2, Minnesota	3,500
Wyllie and Thornhill, Inc	204 East Market Street, Charlottesville, Virginia	3,500
F. S. Yantis & Co. Incorporated	135 South La Salle Street, Chicago 3, Illinois	3,500
York & Co	235 Montgomery Street, San Francisco 4, California	a 3,500
pecific, reservation, in the authorizations i saied		5,000,000

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In the Purchase Contract the Underwriters have agreed to use their best efforts to offer the Comnon Stock in a manner to encourage the widest distribution of the shares to the American public. The text of the provision of the Purchase Contract setting forth such agreement of the Underwriters is quoted below. In such text, the term "Representatives" refers to the Underwriters named on the cover of this Prospectus, and the term "Selected Dealers" refers to members of the National Association of Securities Dealers, Inc., selected by the Representatives, to whom certain of the shares to be purchased by the Underwriters will be sold by the Underwriters for resale to the public:

"The Underwriters agree that they will use their best efforts to offer the Shares in a manner to encourage the widest distribution to the American public. In this connection, each Underwriter agrees that in filling orders for Shares retained by it for direct sale (i.e. Shares other than those reserved by the Representatives for sales for the account of such Underwriter to Selected Dealers or others), it will first make allotments of not in excess of 50 Shares, and in no event will it make allotments in excess of 100 Shares unless by such limitation of allotments it would be unable to dispose promptly of all such retained Shares. It is understood that no Underwriter shall be deemed to be unable to dispose promptly of its retained Shares and thereby be permitted to make allotments in excess of 100 Shares unless such Underwriter shall have first notified the Representatives and

1201 Bank of Delaware Bldg

3,500

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afforded them the opportunity to sell for its account to Selected Dealers such of said retained Shares as to which such Underwriter has not made allotments of 100 Shares and less. Nothing herein shall be construed as requiring any Underwriter to enter or fill any particular orders, to allot Shares on the basis of any fixed or consistent ratio, or to allot Shares in any manner which it believes will cause a concentration of holdings or adversely affect the distribution of the Shares. The Representatives will obtain from each Selected Dealer to whom they make sales for the accounts of Underwriters an agreement substantially to the same effect as this paragraph. Each Underwriter will refrain, and such agreement will require each Selected Dealer to refrain, from selling Shares, with or without any discount from the public offering price, to any dealer in securities unless such dealer has entered into such an agreement with the Representatives and unless such sale is first consented to by the Representatives."

The Common Stock offered by the several Underwriters is offered subject to prior sale and when, as and if issued by the Corporation and accepted by the Underwriters, and subject to the approval of certain legal matters by their counsel, Messrs. Brown, Wood, Fuller, Caldwell & Ivey, and by counsel for the Corporation, Allen E. Throop, Esq., and Messrs. Wilmer, Cutler & Pickering, and the Underwriters reserve the right to withdraw, cancel or modify such offer and to reject orders in whole or in part.

The Representatives of the Underwriters have advised the Corporation that sales to certain dealers may be made at a concession of not in excess of 50¢ per share.

The Corporation has agreed to indemnify the Underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

# CARRIER SUBSCRIPTION MATTERS

The FCC has reserved the right, by means of a specific reservation in the authorizations issued to carriers, to allocate stock among the authorized carriers in the event of an oversubscription of the stock reserved for sale to such carriers. By letter dated April 30, 1964, however, the FCC has informed the Corporation that it will not make any allocation of stock pursuant to this reservation, provided the Corporation allocates the stock in the manner and to the extent set forth below. The letter also stated that, in view of the FCC's authority under Section 304(f) of the Act to require one authorized carrier to sell shares of the Corporation to another authorized carrier, nothing contained in the allocation formula should be construed to limit or restrict in any way the right of any authorized carrier to apply to the FCC for relief pursuant to the provisions of the aforementioned Section, nor from obtaining relief pursuant to any action of the FCC instituted in accordance therewith.

In the event that the total number of shares subscribed for by all authorized carriers exceeds the number of shares (5,000,000) reserved for offering to such carriers, the reserved shares will be allocated among the subscribing carriers on the following basis (with adjustment of odd amounts, as the Corporation may determine to a multiple of 100 shares):

- 1. If there are two or more subscriptions each for more than 50% of the reserved shares, each such subscription shall be reduced to 50% of the reserved shares.
- 2. If there is a single subscription for more than 50% of the reserved shares, such subscription shall be reduced until it equals 50% of the reserved shares or until the amount of oversubscription is eliminated, whichever occurs first.

- 3. If no subscription is for more than 50% of the reserved shares, or if an oversubscription remains after reduction is made as provided for in paragraph 1 or 2 above, then all subscriptions for more than 5,000 shares (including the remainder of any subscriptions reduced to 50% of the reserved shares, as hereinabove provided) shall be reduced *pro rata*, on the basis of the amount by which each such subscription exceeds 5,000 shares, until the amount of oversubscription is eliminated.
- 4. In no event shall the above formula be applied to any subscription for 5,000 or less shares or to reduce any subscription below 5,000 shares.
- 5. For the purpose of this formula, subscriptions of affiliated authorized carriers shall be treated as one combined subscription. An authorized carrier will be considered affiliated with another authorized carrier if it directly, or indirectly through one or more intermediaries, controls, or is controlled by, such other carrier or is under common control with such other carrier. In determining whether authorized carriers are affiliated, the Corporation will rely upon advice received from the Federal Communications Commission.
- 6. When a reduction is made in a combined subscription consisting of subscriptions of two or more affiliated carriers, the reduction shall be applied *pro rata* among the respective constituent subscriptions of such affiliated carriers, notwithstanding the fact that any such constituent subscription is for 5,000 or less shares or would be reduced below 5,000 shares, but subject to adjustment of odd amounts to a multiple of 100 shares.

The determinations of the Corporation reasonably made in the application of the formula set forth above, including determinations made with respect to the combining of subscriptions of affiliated authorized carriers, the *pro rata* reduction of subscriptions, and the adjustment of subscriptions to multiples of 100 shares, shall be conclusive and binding upon all persons having an interest in the allocation of shares among authorized carriers.

On May 28, 1964, the FCC issued a statement, the text of which is set forth below:

"The Commission has recently been informed that certain communications common carriers, who have been authorized by the Commission to acquire shares of stock of the Communications Satellite Corporation, may intend to use their authorizations in a manner which is incompatible and inconsistent with the purposes and objectives of the Communications Satellite Act of 1962.

"Specifically, inquiry has been made whether carriers may purchase stock with their own funds or with borrowed funds for the purpose of reselling it after the sixty (60) day holding period required by the terms of the Corporation's offering to the Common Carriers. Such action would not only be contrary to the purposes for which the authorizations were originally given but also would give carriers an unfair advantage over members of the general public in the acquisition of stock. Each common carrier authorization was granted upon a finding by the Commission that ownership of stock by that particular carrier '. . . will be consistent with the public interest, convenience, and necessity.' This statutory finding clearly presupposes the acquisition of stock by a carrier for legitimate investment purposes and not for speculation.

"The carriers have been accorded a privileged position in the acquisition of Corporation stock. The allocation formula (approved by the Commission on April 29, 1964), provides that, in the

event of an oversubscription of stock among such carriers, each carrier have the opportunity to subscribe for 5,000 shares or \$100,000 of stock. If any carrier should take advantage of this privilege to buy shares with the intent to sell them at the earliest possible time, it would be acting clearly in a manner which is both incompatible and inconsistent with the purposes and objectives of the Act.

"Furthermore, to the extent that any authorized carrier may make an agreement express or implied with another entity giving such entity an interest in or voice with respect to the disposition of the stock or a share in any profits of a resale, such carrier would violate the provisions in our authorizations requiring the disclosure of all real parties in interest.

"Nothing, of course, requires the carriers to hold such stock indefinitely. But authorized carriers should conduct themselves in such fashion as to demonstrate that they did not acquire the stock for speculative purposes. Any hasty disposition of the stock would raise serious questions as to the purposes for which the purchase was made.

"The Commission is therefore considering whether appropriate action should be taken to deal with this matter, including the desirability of revising its rules concerning authorized carrier stock during the next 60-day period. The purpose of this Notice is to inform all interested persons so that they are made aware at this time of the Commission's construction of its present rules and the possibility of further appropriate action in this respect."

## LEGAL OPINIONS

The legality of the shares of Common Stock offered hereby will be passed upon for the Corporation by Allen E. Throop, Esq., Vice President and General Counsel of the Corporation, and Messrs. Wilmer, Cutler & Pickering, 900 17th Street, N.W., Washington, D. C., and for the Underwriters by Messrs. Brown, Wood, Fuller, Caldwell & Ivey, 70 Pine Street, New York, N. Y. In respect of matters of law of the District of Columbia, Mr. Throop and Messrs. Brown, Wood, Fuller, Caldwell & Ivey will rely on said opinion of Messrs. Wilmer, Cutler & Pickering.

#### **EXPERTS**

The Statement of Assets, Preliminary Survey, Research, Development, and Organization Expenses, and Liabilities and Capital (December 31, 1963) and the Statement of Cash Receipts and Disbursements for the Period from February 1, 1963 (date of incorporation) to December 31, 1963 included in this Prospectus have been examined by Haskins & Sells, independent public accountants, as stated in their opinion appearing herein, and have been so included in reliance upon such opinion given upon the authority of that firm as experts in accounting and auditing.



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(LL) BY COLLECT FAX WASHINGTON OF 2 1055% EDT ALLEN E THROOP, VICE PRESIDENT & GENERAL COUNSEL

COMMENTATIONS SATELLITE CORP 3029 KLINELE BOAD NORTHWEST

REGISTRATION STATEMENT COMMUNICATIONS SATELLITE COMPORATION 2-22400 AS AMENDED EFFECTIVE 10100 AM EDST, JUNE 2, 1964

- ACHES C CREEDON SEGURITIES AND EXCHANGE COMMISSION 2-22400 TOTOO AN EDST 2 1984 - 1984 ME 2 PM 12 38

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UNITED STATES OF AMERICA
BEFORE THE
SECURITIES AND EXCHANGE COMMISSION

June 2, 1964

In the Matter of

COMMUNICATIONS SATELLITE CORPORATION

File No. 2-22400

: ORDER DECLARING THE
: REGISTRATION STATEMENT
: EFFECTIVE PURSUANT TO
: SECTION 8(a) OF THE
: SECURITIES ACT OF 1933,
AS AMENDED.

The above-named issuer having filed with the Commission, pursuant to Section 6(a) of the Securities Act of 1933, as amended, and the rules thereunder, a registration statement for the registration of the securities specified on the facing sheet thereof; and

Acceleration of the effective date of the registration statement pursuant to Section 8(a) of the said Act, as amended, having been requested;

IT IS ORDERED that the said registration statement shall become effective at 10:00 A. M., Eastern Daylight Saving Time, June 2, 1964.

Attention is directed to Rule 424(b) of the General Rules and Regulations under the Securities Act of 1933, as amended, relating to the requirement for filing twenty-five copies of the actual prospectus used.

Attention is also directed to the provisions of Section 23 of the said Act which make unlawful certain representations with respect to the effect of registration under the Act.

By direction of the Commission.

Oswal L. DuBois,

Orval L. DuBois, Secretary

# COMMUNICATIONS SATELLITE CORPORATION

3029 KLINGLE ROAD, N.W.

WASHINGTON 8. D. C.

TEL. 244-6000

May 6, 1964

Dear Sirs:

There are enclosed for filing pursuant to the Securities Act of 1933, as amended, three signed copies of a Registration Statement on Form S-1 of the Corporation (including a form of Prospectus conforming to the requirements of Section 433(b)), for the registration under said Act of 10,000,000 shares of Common Stock, without par value, of the Corporation.

Also enclosed herewith are the following:

- (1) three copies of each of Exhibits 1-A, 1-B, 1-C, 1-D, 3-A, 3-B, 13-A, 13-B, 13-B-1, 13-C, 14-A, 14-B, 14-C, 14-C-1 and 15;
- (2) five copies of said form of Prospectus, conforming to the requirements of Rule 433(b), filed pursuant to Rule 424(a);
- (3) five copies of a Cross-Reference Sheet, pursuant to Rule 404(c), with respect to said Registration Statement and said form of Prospectus, filed pursuant to Rule 424(a);
- (4) a certified check, payable to the order of the Commission, in the amount of \$20,000, in payment of the filing fee in respect of said Registration Statement;

- (5) three executed copies of a Power of Attorney authorizing Leo D. Welch, Joseph V. Charyk and Allen E. Throop, and each of them, to sign said Registration Statement and amendments thereto on behalf of officers and directors of the Corporation;
- (6) three copies, certified by the Secretary of the Corporation, of a resolution of the Board of Directors of the Corporation authorizing Leo D. Welch, Joseph V. Charyk and Allen E. Throop, and each of them, to sign said Registration Statement, and amendments thereto, on behalf of the Corporation and certain of its officers;
- (7) five additional unsigned copies of each of said Registration Statement and said Exhibits 1-A, 1-B, 1-C, 1-D, 14-A and 14-B, which are enclosed for the convenience of the Commission's staff.

Exhibits 4-A, 4-B, 6-A and 6-B (constituting the Exhibits not filed herewith) will be filed by amendment.

The consent of Messrs. Wilmer, Cutler & Pickering to the reference to them in said Registration Statement and to the use of their opinions as Exhibits thereto will be included in the opinion of said firm to be filed as Exhibit 6-B to the Registration Statement. The consent of Allen E. Throop, Esq. to the reference to him in said Registration Statement and to the use of his opinion as Exhibit 6-A to the Registration Statement will be included in such opinion.

Please send copies of all notices and other communications with respect to the Registration Statement to

Lloyd N. Cutler, Esq.
Wilmer, Cutler & Pickering
Farragut Building
900 17th Street, N.W.
Washington 6, D. C.

J. Courtney Ivey, Esq.
Brown, Wood, Fuller,
Caldwell & Ivey
70 Pine Street
New York 5, N. Y.

as well as to the agent for service named on the facing sheet of the Registration Statement.

Very truly yours,

COMMUNICATIONS SATELLITE CORPORATION

By SOD Melecul

Securities and Exchange Commission Washington, D. C.

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COMMUNICATIONS SATELLITE CORPORATION

3029 KLINGLE ROAD, N.W.

WASHINGTON 8, D. C.

TEL. 244-6000

May 27, 1964

Dear Sirs:

There are enclosed for filing pursuant to the Securities Act of 1933, as amended, three signed copies of Amendment No. 1 (including an amended form of Prospectus conforming to the requirements of Rule 433(b)) to the Registration Statement on Form S-1 (Registration No. 2-22400) of the Corporation for the registration under said Act of 10,000,000 shares of Common Stock, without par value, of the Corporation.

Also enclosed herewith are the following:

- (1) three copies of Exhibit 14-C-2 and of amended Exhibits 1-A, 1-B, 1-C, 3-B, 14-C and 14-C-1;
- (2) five copies of said amended form of Prospectus, conforming to the requirements of Rule 433(b), filed pursuant to Rule 472(b);
- (3) five copies of an amended Cross-Reference Sheet, with respect to said Amendment No. 1 and said amended form of Prospectus; and
- (4) seven additional copies (conformed) of said Amendment No. 1 (including the amended form of Prospectus), and two additional copies of said Amendment No. 1 and said amended Exhibits 1-A, 1-B, 1-C, 3-B, 14-C and 14-C-1, marked to indicate the changes that have been made in the Registration Statement and said Exhibits, respectively, as filed with the Registration Statement, which are enclosed for the convenience of the Commission's staff.

May 27, 1964

It is desired that the Registration Statement become effective as early as possible in the morning of Tuesday. June 2, 1964. Requests by the Corporation and the Representatives of the Underwriters for such accelerated effectiveness of the Registration Statement will be filed with you, together with information concerning the distribution of the Preliminary Prospectus. At the opening of business on June 2, 1964, there will be filed a final amendment to the Registration Statement setting forth the underwriting discount and dealer concession, together with copies of Exhibits 1-A, 1-B and 1-C, as to be further amended to reflect such information and copies of the remaining Exhibits (Exhibits 4-A, 4-B, 6-A and 6-C) to be filed.

Very truly yours,

COMMUNICATIONS SATELLITE CORPORATION

Secretary

Securities and Exchange Commission Washington, D. C.

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# COMMUNICATIONS SATELLITE CORPORATION

3029 KLINGLE ROAD, N.W.

WASHINGTON 8, D. C.

June 2, 1964

TEL. 244-6000

Dear Sirs:

There are enclosed for filing pursuant to the Securities Act of 1933, as amended, three signed copies of Amendment No. 2 (including an amended form of Prospectus) to the Registration Statement on Form S-1 (Registration No. 2-22400) of the Corporation for the registration under said Act of 10,000,000 shares of Common Stock, without par value, of the Corporation.

Also enclosed herewith are the following:

- (1) three copies of Exhibits 4-A, 4-B, 6-A, 6-B and 15 and of amended Exhibits 1-A, 1-B and 1-C;
- (2) five copies of said amended form of Prospectus, filed pursuant to Rule 472(b);
- (3) five copies (conformed) of said Amendment
  No. 2 (including the amended form of Prospectus); and
- (4) five additional copies (conformed) of said
  Amendment No. 2 (including the amended form of Prospectus),
  and two additional copies of said amended Exhibits
  1-A, 1-B and 1-C, marked to indicate the changes that
  have been made in the Registration Statement and said
  Exhibits, respectively, which are enclosed for the convenience of the Commission's staff.

Very truly yours,

COMMUNICATIONS SATELLITE CORPORATION

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Secretary

Securities and Exchange Commission Washington, D. C.

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# COMMUNICATIONS SATELLITE CORPORATION

3029 KLINGLE ROAD, N.W. WASHINGTON 8, D. C.

TEL. 244-6000

May 19, 1964

Dear Mr. Bernstein:

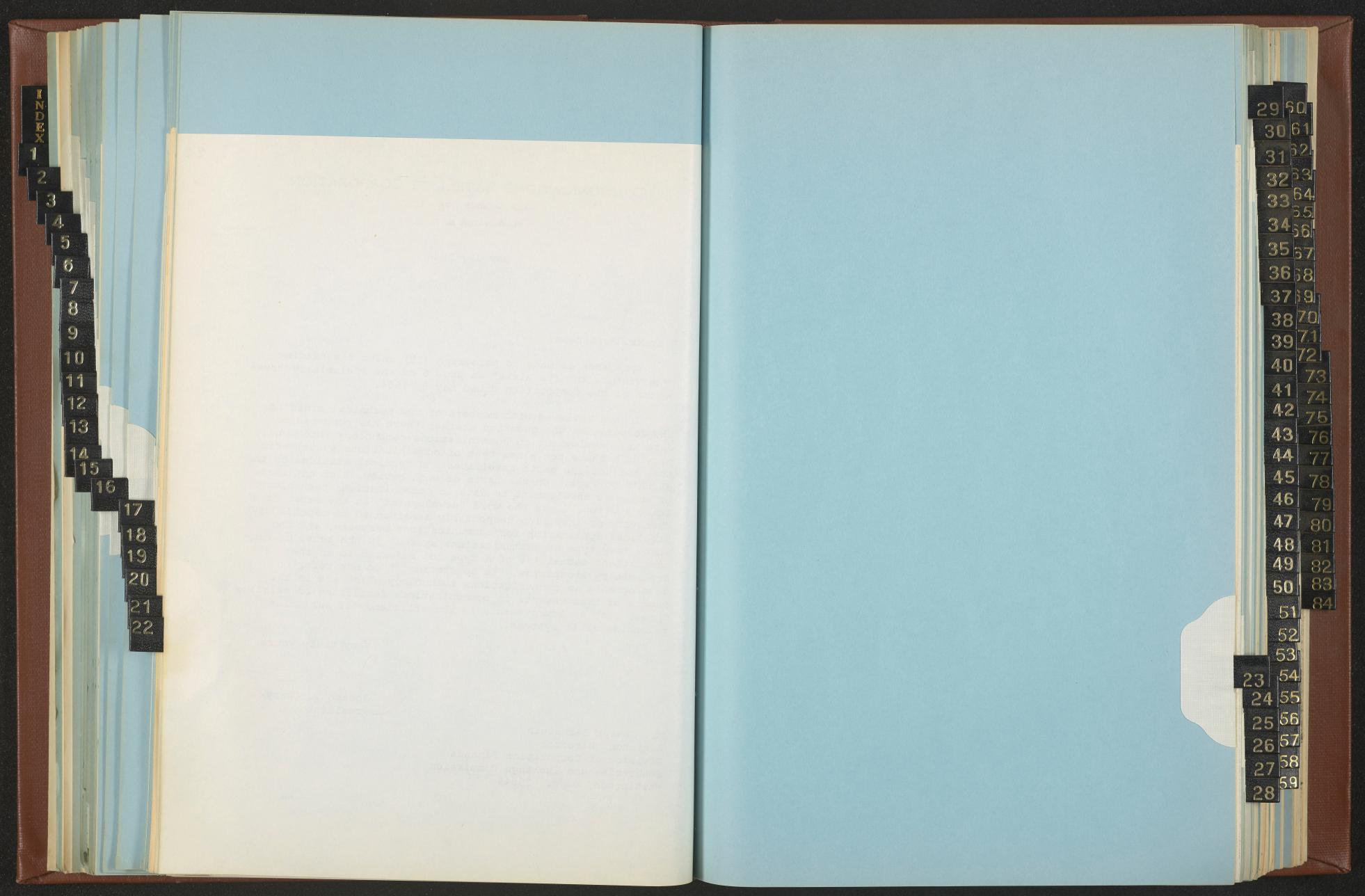
Reference is made to paragraph (12) under the heading "The Venture and Its Risks" on page 6 of the Preliminary Prospectus of the Corporation dated May 6, 1964.

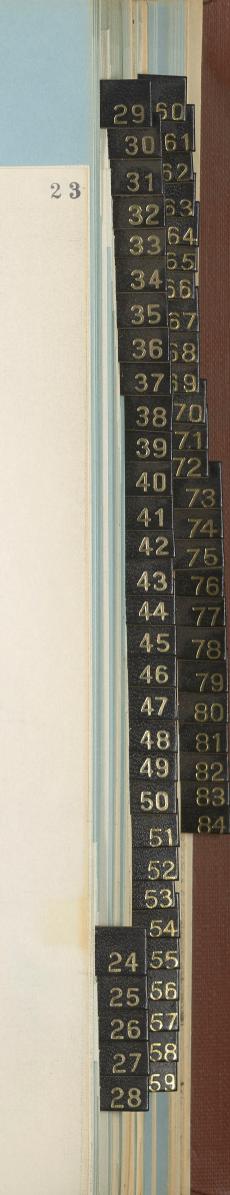
I have reviewed with members of the technical staff of the Corporation the question whether there has occurred to date any development in communications technology which would provide a basis for a new type of communications system which does not utilize earth satellites and terminal stations on the earth's surface. On the basis of such review, I am not aware of any such development to date in communications technology. In so stating, I use the word "development" in the sense of a discovery or invention responsibly asserted to be capable of practical application for communications purposes, and the words "new type of communications system" in the sense of communications facilities of a type not referred to in the Preliminary Prospectus. In so stating, I do not refer to developments in communications technology which are in the nature of improvements in communications facilities of existing types, such as improvements in the efficiency of submarine telephone cable systems.

Very truly yours,

Joseph V. Charyk
President

Mr. Joseph Bernstein
Assistant Director
Division of Corporation Finance
Securities and Exchange Commission
Washington, D. C. 20549





May 19, 1964

Dear Mr. Bernsteins

The materials referred to below and enclosed herewith, and the information included in this letter, are furnished in response to the request that there be furnished to the staff of the Commission supplemental information with respect to certain matters referred to in the Preliminary Prospectus of the Corporation dated may 6, 1966s

- (A) With respect to the applications of the Corporation, referred to on the cover page of the Preliminary Prospectus, for the Listing of shares of Common Stock on the New York Stock Exchange, the Midwest Stock Exchange and the Pacific Coast Stock Exchange, reference is made to:
  - (1) the Preliminary Draft of the Application of the Corporation to the New York Stock Exchange (Attachment 1).
  - (2) the letter dated May 14, 1964, of the New York Stock Exchange to the Corporation (Attachment 2),
  - (3) the letter dated May 14, 1964, of the Midwest Stock Exchange to the Corporation (Attachment 3), and
  - (4) the letter dated May 14, 1964, of the Pacific Coast Stock Exchange to the Corporation (Attachment 4).
- (B) With respect to the statement in paragraph (8) under the heading "The Venture and Its Risks" in the Preliminary Prospectus that United States communications common carriers (other than ATAT) have indicated an interest in leasing satellite system channels of commercial quality, reference is made to the following materials:

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May 19, 1964

- (1) Report of the Ad Hoc Carrier Committee, dated October 12, 1961, FCC Docket No. 14024 (Attachment 5);
- (2) papers submitted to the Incorporators of the Corporation in November, 1962, by Hawaiian Telephone Company, International Telephone and Telegraph Corporation, Press Wireless, Inc., Radio Corporation of America and Western Union Telegraph Company, respectively, in response to a request by the Incorporators for a statement of the carriers' views with respect to various matters relating to "Future of International Telecommunications" (Attachment 6); and
- (3) copy of the letter dated April 20, 1964, of International Telephone and Telegraph Corporation to the Honorable Thomas C. Mann, Department of State, Washington, D. C. (Attachment 7).
- (C) With respect to the matters of communications technology referred to in the second sentence in paragraph (12) under the heading "The Venture and Its Risks" in the Preliminary Prospectus, reference is made to the letter dated May 19, 1964 of the President of the Corporation, addressed to you (Attachment 8).
- (D) With respect to the statements on page 24 of the Preliminary Prospectus concerning the demand for telecommunications service between Western Europe and North America, and on certain other overseas routes, during peak-demand hours in 1963, reference is made to the following materials:
  - (1) copy of Application dated October 1, 1963, of American Telephone and Telegraph Company for authority under Section 214 of the Communications Act of 1934, as amended, to construct and operate a deep sea submarine cable between the United States and France, FCC File No. P-C-5494 (Attachment 9) and
  - (2) Memorandum Opinion and Order dated March 17, 1964, of the Federal Communications Commission in proceedings designated File Nos. P-C-5494, etc. (Attachment 10).

May 19, 1964

- (E) With respect to the information on page 11 of the Preliminary Prospectus under the heading "Experimental Communications Satellites (U.S.)", reference is made to the following materials:
  - (1) copy of letter dated April 27, 1964, of the National Aeronautics and Space Administration to the Corporation (Attachment 11) and
  - (2) copy of letter dated April 24, 1964, of the Office of the Director of Defense Research and Engineering, to the Corporation (Attachment 12).
- (F) With respect to the statements on pages 14-15 of the Preliminary Prospectus under the heading "Experimental-Operational Satellites", concerning launching experience in respect of the Thor-Delta rocket vehicle, reference is made to a copy of the letter dated May 18, 1964, of the National Aeronautics and Space Administration to the Corporation (Attachment 13).
- (G) With respect to the estimates for the year 1963 included in the table on page 24 of the Preliminary Prospectus, reference is made to a copy of the letter dated May 4, 1964, of the Secretary of the Federal Communications Commission to the Corporation (Attachment 14).
- (H) With respect to the statements on page 25 of the Preliminary Prospectus under the heading "Future International Telecommunications Traffic" concerning estimates of future international telecommunications traffic of which the officers of the Corporation have knowledge, reference is made to the following materials:
  - (1) Report of the Ad Hoc Carrier Committee, dated October 12, 1961, FCC Docket No. 14024 (Attachment 5);
  - (2) Memorandum RM-3487-RC (February, 1963), The Rand Corporation (Attachment 15);
  - (3) copy of data submitted by the United States Delegation to the Meeting of the Plan Committee of the International Telecommunication Union (November-December, 1963) (Attachment 16);

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May 19, 1964

- (4) copy of letter dated December 6, 1963, of James E. Dingman, Executive Vice President of American Telephone and Telegraph Company, to the Corporation (Attachment 17); and
- (5) Application dated October 1, 1963, of American Telephone and Telegraph Company, FCC File No. P-C-5494 (Attachment 9).
- (I) With respect to the statement on page 25 of the Preliminary Prospectus under the heading "Competition" that AT&T and others are engaged in the development of improved submarine telephone cables:

The Corporation is informed that, in addition to AT&T. Standard Telephone and Cables Limited, a United Kingdom subsidiary of International Telephone and Telegraph Corporation, is engaged in the development of improved submarine telephone cables.

Very truly yours,

/s/ David J. Melamed

David J. Melamed Secretary

Mr. Joseph Bernstein
Assistant Director
Division of Corporation Finance
Securities and Exchange Commission
Washington, D. C. 20549

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Mr. Joseph Bernstein
Assistant Director
Securities and Exchange Commission
425 Second Street, N. W.
Washington 25, D. C.

Dear Mr. Bernstein:

The Preliminary Prospectus of the Communications Satellite Corporation, dated May 6, 1964, refers to a letter received by the Chairman of the Corporation from the American Telephone and Telegraph Company (AT&T), with which you are familiar, in which that company indicates its interest in the use of satellite system circuits on North Atlantic routes beginning in late 1966 or early 1967, provided that during 1964 the Corporation can give appropriate assurances as to the availability of suitable satellite circuits in 1966 or early 1967. In this connection AT&T recognizes the need of the agreement of the interested European telecommunications entities and the necessity of certain prior authorizations from the Federal Communications Commission.

Which it may be possible for the Corporation to give to AT&T by the end of 1964 that would be responsive to the needs of AT&T as stated above.

The Corporation's Preliminary Prospectus refers to the fact that the Corporation expects shortly to negotiate and enter into agreements with certain of the firms which have submitted proposals for the preparation of engineering designs for satellites for a commercial system, and may also enter into certain other agreements for the conduct of other studies relating to satellite design. At the end of the design period the Corporation expects to enter into an agreement or agreements for the development of prototype satellites of one or more types, so that in the latter part of 1965 it would be in a position to determine whether the commercial system would be a medium altitude random system, a medium altitude controlled

May 21, 1964

system or a synchronous system.

Whichever type of system is selected, it would be designed to provide at least 270 two-way telephone grade circuits. Although, as indicated in the Preliminary Prospectus, the date by which such circuits would provide uninterrupted 24-hour service over the North Atlantic would depend to some extent on the type of system selected, it is expected that such uninterrupted service would in any event be available not later than the latter part of 1967. Furthermore, regardless of the type of system selected, the present program for system development would result in the emplacement by early 1967 of at least a number of satellites providing North Atlantic circuits satisfactory in quality and having costs bearing a reasonable relationship to alternative methods, which would be sufficient to provide an average grade of service (fraction of customer calls for which circuits are available immediately) equivalent to that obtained by means of North Atlantic routes at the present time. Accordingly, we believe by the end of 1964 the Corporation will be in a position to give ATAT reasonable assurances that suitable satellite circuits will be available on the North Atlantic routes by early 1967.

As stated above, the AT&T letter points out the need of concurrence by interested European telecommunications entities in any program for North Atlantic satellite communications. The current status of discussions with such entities is indicated in the Preliminary Prospectus under "International Arrangements for System". Such discussions are proceeding on a basis which we believe makes it reasonable to conclude that considerably before the end of 1964 substantial agreement will have been arrived at with such entities looking toward the use of the satellite circuits when they become available.

It is to be recognized, as stated in the Preliminary Prospectus, that the construction and technical characteristics of the system will be subject to the prior authorizations from the Federal Communications Commission. We have no reason to believe that the need for various authorizations of the Federal Communications Commission will delay the program outlined above.

Yours very truly,

Joseph V. Charyk

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MERRILL LYNCH, PIERCE, FENNER & SMITH SEVENTY PINE STREET

NEW YORK 5, N. Y.

WHITEHALL 4-1212

May 27, 1964

Communications Satellite Corporation 3029 Klingle Road, N.W. Washington 8, D.C.

#### Gentlemen:

We advise you that we have made, or where appropriate we intend making, the following distribution of material in connection with the proposed offering of your Common Stock, without par value.

1. Distribution of Registration Statement and Proposed Prospectus in their initial form

Commencing May 6, 1964 copies of the Registration Statement as originally filed were mailed or otherwise distributed as follows:

3	Financial Services	8	
	N.A.S.D.		
385	New York Stock Exchange Prospective Underwriters	412	
		1100	anni

Commencing May 6, 1964 copies of the Preliminary Prospectus dated May 6, 1964 were mailed or otherwise distributed approximately as follows:

53	Financial Services and Publications, Corpora-		
	tions, etc.	174	
385 1,015		1,775	
49	Others	71	

113,930 copies

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## 2. Distribution of Amendments to the Registration Statement

At least one copy of the Amendment to the Registration Statement filed with the Securities and Exchange Commission on May 27, 1964 will be sent to 385 prospective Underwriters, and each other person who received a Registration Statement as originally filed. A copy of any future amendment will be sent to such persons.

## 3. Distribution of Amended Preliminary Prospectuses

We plan to distribute approximately 2,000 Amended Preliminary Prospectuses dated May 27, 1964 to 385 prospective Underwriters and approximately 950 Amended Preliminary Prospectuses dated May 27, 1964 to approximately 950 dealers.

The 950 dealers mentioned above, with the 385 Underwriters, constitute all those who it is presently contemplated will participate in the offering.

Yours very truly,

Merrill Lynch, Pierce, Fenner & Smith Incorporated Blyth & Co., Inc. The First Boston Corporation Kidder, Peabody & Co. Incorporated Kuhn, Loeb & Co. Incorporated Lazard Freres & Co. Lehman Brothers Carl M. Loeb, Rhoades & Co. Paine, Webber, Jackson & Curtis White, Weld & Co. Incorporated Dean Witter & Co.

as Representatives of the Several Underwriters

By Merrill Lynch, Pierce, Fenner & Smith Incorporated

Vice President

# COMMUNICATIONS SATELLITE CORPORATION

3029 KLINGLE ROAD, N.W. WASHINGTON 8, D. C.

TEL. 244-6000

June 1, 1964

### Registration No. 2-22400

Dear Sirs:

There are transmitted herewith three copies (including one signed copy) of each of the following documents:

- (i) a letter dated May 27, 1964, of the Representatives of the several Underwriters, addressed to the Corporation, furnishing information in respect of the distribution of material in connection with the proposed offering of Common Stock of the Corporation, including information with respect to the distribution of the Preliminary Prospectus dated May 6, 1964 of the Corporation;
- (ii) a letter dated June 1, 1964, of the Corporation, addressed to the Commission, requesting the acceleration of the effectiveness of the Registration Statement; and

(iii) a letter dated June 1, 1964, of the Representatives of the several Underwriters, addressed to the Commission, joining in such request of the Corporation that the effectiveness of the Registration Statement be accelerated.

Very truly yours,

COMMUNICATIONS SATELLITE CORPORATION

By Slow Willems

Secretary

Securities and Exchange Commission Washington, D.C. 20549

June 1, 1964 Securities and Exchange Commission Washington, D.C. 20549 Re: Registration Statement No. 2-2240 Dear Sirs: 75 76 77 78 79 80 81 82 83 Communications Satellite Corporation hereby requests that the effectiveness of Registration Statement No. 2-2240 for the registration under the Securities Act of 1933, as amended, of 10,000,000 shares of its Common Stock, without par value, be accelerated so that said Registration Statement will become effective as soon as practicable after the filing of Amendment No. 2 thereto, which the Corporation expects to file on June 2, 1964. 19 20 Very truly yours, COMMUNICATIONS SATELLITE CORPORATION 51 52 53 54 55 56 57 58

Merrill Lynch, P. ce, Fenner & Smith
Incorporated

Blyth & Co., Inc.
The First Boston Corporation
Kidder, Peabody & Co. Incorporated
Kuhn, Loeb & Co. Incorporated
Lazard Freres & Co.
Lehman Brothers
Carl M. Loeb, Rhoades & Co.
Paine, Webber, Jackson & Curtis

White, Weld & Co. Incorporated

Representatives of Underwriters

Dean Witter & Co.

70 Pine Street 28. New York 5, New York 30 61

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June 1, 1964

Securities and Exchange Commission Washington, D. C. 20549

Re: Communications Satellite Corporation Registration Statement No. 2-22400

Dear Sirs:

We hereby join Communications Satellite Corporation in requesting that the effectiveness of the Registration Statement referred to above be accelerated so that said Registration Statement will become effective as soon as practicable after the filing of Amendment No. 2 thereto, which the Corporation expects to file on June 2, 1964.

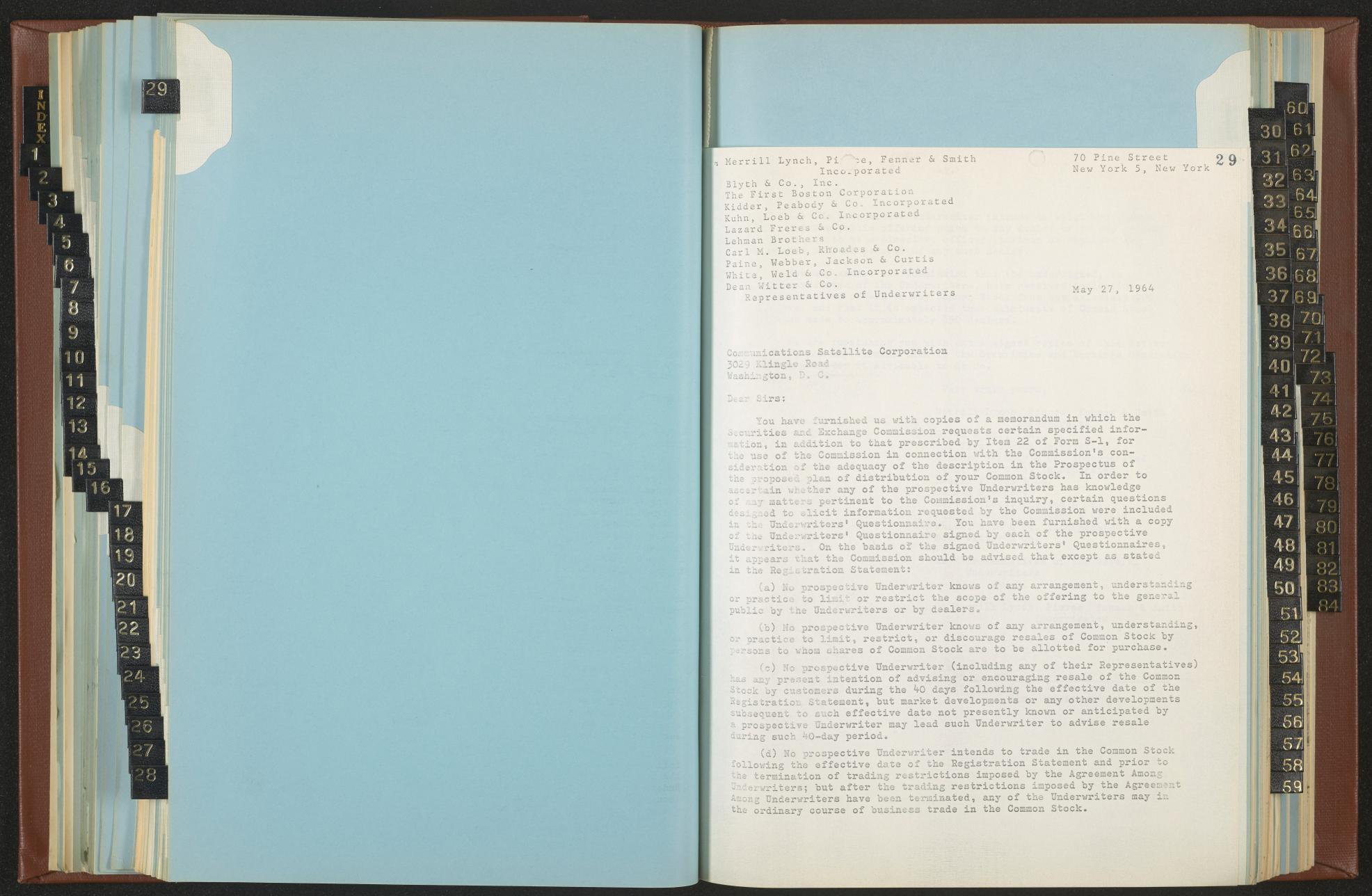
Very truly yours,

Merrill Lynch, Pierce, Fenner & Smith
Incorporated
Blyth & Co., Inc.
The First Boston Corporation
Kidder, Feabody & Co. Incorporated
Kuhn, Loeb & Co. Incorporated
Lazard Freres & Co.
Lehman Brothers
Carl M. Loeb, Rhoades & Co.
Paine, Webber, Jackson & Curtis
White, Weld & Co. Incorporated
Dean Witter & Co.

as Representatives of the Several Underwriters

By Merrill Lynch, Pierce, Fenner & Smith Incorporated

J. H. Sodlmayr, Vice President



(e) No prospective Underwriter intends to allot any Common Stock at the public offering price to any dealer or to any person known to it to be a director, officer, partner or employee (or relative of such person) of any such dealer.

You may advise the Commission that the undersigned, as Representatives of the Underwriters, have received indications of interest or offers to buy Common Stock from approximately 900 dealers, and that it is expected that allotments of Common Stock will be made to approximately 850 dealers.

We are furnishing you with extra signed copies of this letter so that you may furnish them to the Securities and Exchange Commission if you consider it advisable to do so.

Very truly yours,

Merrill Lynch, Pierce, Fenner & Smith Incorporated Blyth & Co., Inc. The First Boston Corporation Kidder, Peabody & Co. Incorporated Kuhn, Loeb & Co. Incorporated Lazard Freres & Co. Lehman Brothers Carl M. Loeb, Rhoades & Co. Paine, Webber, Jackson & Curtis White, Weld & Co. Incorporated Dean Witter & Co.

as Representatives of the Several Underwriters

By Merrill Lynch, Pierce, Fenner & Smith Incorporated

> J. H. Sedlmayr Vice President

JHS:gs

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# COMMUNICATIONS SATELLITE CORPORATION

3029 KLINGLE ROAD. N.W.

WASHINGTON 8, D. C.

TEL. 244-5000

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June 1, 1964

Securities and Exchange Commission 425 Second Street, N.W. Washington 25, D. C.

Attention: Joseph Bernstein
Re: Registration Statement No. 2-22400

Dear Sirs:

You have furnished us with copies of a memorandum in which the Securities and Exchange Commission requests certain specified information, in addition to that prescribed by Item 22 of Form S-1, for the use of the Commission in connection with the Commission's consideration of the adequacy of the description in the Prospectus of the proposed plan of distribution of the securities being registered. We furnished a copy of this memorandum to the Representatives of the Underwriters. Enclosed is a copy of their letter in answer to such memorandum.

We wish to advise you that, except as stated below, our answers to the items of such memorandum, and the answers of our officers and directors, are the same as those of the Representatives of the Underwriters as set forth in the enclosed letter.

The Corporation is advising its officers and other employees that it expects that any purchases of stock of the Corporation made by its officers or other employees or by members of their immediate families, whether made at the time of the present offering or subsequently, will be made for investment purposes and not for speculation, and that accordingly, in the absence of an unanticipated change of circumstances in the employee's own affairs, the Corporation will expect that stock purchased by any employee will be held for at least a year.

Very truly yours,

COMMUNICATIONS SATELLITE CORPORATION

Vice President

3029 KLINGLE ROAD, N.W. WASHINGTON 8. D. C.

TEL. 244-600

June 1, 1964

Dear Mr. Bernstein:

The information furnished below is furnished in response to your request that there be furnished to the staff of the Commission supplemental information with respect to certain matters referred to in the Preliminary Prospectus dated May 27, 1964, of the Corporation or relating to the offering of Common Stock.

## (1) Concerning H.R. 11357.

The Preliminary Prospectus does not refer to the bill (H.R. 11357) introduced in the House of Representatives on May 21, 1964, by Congressman Carey, which would amend Section 304(a) of the Communications Satellite Act to provide that:

"To insure distribution to the greatest practical number of subscribers no person shall be eligible to subscribe for more than five shares of the original issue."

We believe that, assuming that the Registration Statement of the Corporation (Registration No. 2-22400) becomes effective on or about June 2, 1964, there is not any basis for belief that H.R. 11357 (or any other legislation to the same or a similar effect) would be enacted before the effective date of the Registration Statement or before the issuance and sale of the shares of Common Stock covered by the Registration Statement. We also believe that the bill, if enacted after the effective date of the Registration Statement and the issuance and sale of the shares, could not constitutionally affect the validity of purchases of shares from the Underwriters, even if the bill were to be interpreted as meant to have a retroactive effect. Accordingly, we believe that the introduction of the bill is not a material matter to which reference should be made in the Prospectus.

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# (2) National Communications System.

Discussions between the Corporation and the office of the Secretary of Defense with respect to the matters referred to in the Preliminary Prospectus under the heading "National Communications System Program" are continuing. We believe that it may be possible within the next few weeks to reach agreement in principle with the office of the Secretary of Defense with respect to the matters under discussion, subject to further consideration by the Board of Directors of the Corporation and to the views of both the major U.S. communications common carriers and the prospective international participants in the global system. At the present time agreement in principle has not been reached with respect to certain of the matters under discussion with the office of the Secretary of Defense concerning the program. Although, as indicated above, progress has been made toward the reaching of agreement in principle with the office of the Secretary of Defense concerning the National Communications System program, we believe that the statement on page 20 of the Preliminary Prospectus that "there is substantial question whether the problems inherent in the program can be resolved and as to the extent to which modifications in the program would affect the costs thereof or the time or manner in which it would be carried out", and the other statements under the heading "National Communications System Program", are an accurate statement of the matters referred to therein.

# (3) International Arrangements for System.

The Preliminary Prospectus refers (page 21) to preliminary discussions in London with respect to proposed interim arrangements for the establishment and operation of the satellite system. Such discussions, which concluded on May 29, 1964, indicated a substantial interest on the part of the participating governments and telecommunications entities of other countries in arriving at mutually acceptable interim arrangements. The results of these discussions are to be reported to the Board of Directors of the Corporation at a meeting to be held on June 8, 1964, in order to provide instructions for the next international discussions which, as stated in the

Prospectus, are to be held in the middle and latter part of June. It is anticipated that the major U. S. communications common carriers will be consulted by the Corporation in connection with the present and future international discussions.

## (4) Patent Matters.

Numbered paragraph (14) on page 6 of the Prospectus that Corporation's patent position. The statements made in this paragraph are based on a report, dated May 23, 1964, made by the Corporation's patent counsel, George E. Frost. A copy of this report, and a copy of a letter from Mr. Frost dated May 25, 1964 confirming that the present text of paragraph (14) is in accord with such report, have been submitted to the staff of the Commission.

Mr. Frost's report refers to the fact that the Corporation can continue to use, in accordance with usual industry practice, procurement contracts containing patent infringement indemnities by the supplier. He states that in this way the Corporation can expect to transfer patent infringement risks to its suppliers without unreasonable expense except in cases where a specific key patent infringement question is known in advance. He cited the availability of such indemnities in normal circumstances as one of several reasons for his conclusion that the Corporation is likely to be able to obtain access to patent rights on reasonable terms.

In the view of the Corporation, it would attach unwarranted importance to the normal availability of indemnities if this particular fact were to be singled out in paragraph (14) as the reason for the conclusion stated therein. Furthermore, any such statement would have to be qualified to mention the possibility that such indemnities might be unavailable in particular cases, and that the supplier's cost of acquiring needed patent rights and granting patent indemnities would normally be reflected in the supplier's price to the Corporation. Finally, since a statement concerning indemnities would not modify or qualify but would merely support the conclusion stated in paragraph (14), the Corporation believes that such a statement is not material, and that its omission is in no way misleading.

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## (5) Supplement to Prospectus.

In the event any development occurs within the period of 40 days from the effective date of the Registration Statement, in respect of the matters referred to under "National Communications System Program" or "International Arrangements for System", the non-disclosure of which would make the Prospectus misleading in the light of then existing circumstances, it is the intention of the Corporation to prepare and make available a supplemental or amended Prospectus reflecting such development.

Very truly yours,

/s/ Joseph V. Charyk

Joseph V. Charyk President

Mr. Joseph Bernstein
Assistant Director
Division of Corporation Finance
Securities and Exchange Commission
Washington, D. C. 20549

Merrill Lynch, Pierce, Fenner & Smith Incorporated
Blyth & Co., Inc.
The First Boston Corporation
Kidder, Peabody & Co. Incorporated
Kuhn, Loeb & Co. Incorporated
Lazard Freres & Co.
Lehman Brothers
Carl M. Loeb, Rhoades & Co.
Paine, Webber, Jackson & Curtis
White, Weld & Co. Incorporated

June 2, 1964

70 Pine Street

New York 5, New York

Communications Satellite Corporation 3029 Klingle Road, N. W. Washington 8, D. C.

Representatives of Underwriters

Attention: Allen E. Throop, Esq.
Vice President and General Counsel

Re: Your Registration Statement No. 2-22400

Dear Sirs:

Dean Witter & Co.

On behalf of the Underwriters, this will confirm to you that the following information appearing in your Prospectus dated June 2, 1963 contained in your Registration Statement No. 2-22400, as amended through June 2, 1964, has been furnished by us for use therein:

- l. The information contained in the Prospectus regarding stabilization on page 2 thereof.
- 2. The information contained in the Prospectus in the last sentence of the first paragraph under the caption "Offering of Common Stock Offering to Public."
- 3. The information contained in the Prospectus in the first sentence of the third paragraph under the caption "Offering of Common Stock Offering to Public."

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- 4. The information contained in the Prospectus on pages 43 through 52, under the caption "Underwriting."
- 5. The information appearing as the answer to Item 22 of the Registration Statement.

Exhibits 1-A, 1-C and 1-D to the Registration Statement, as filed and as amended by Amendment No. 1 and Amendment No. 2, were also supplied by us.

Very truly yours,

Merrill Lynch, Pierce, Fenner & Smith Incorporated Blyth & Co., Inc. The First Boston Corporation Kidder, Peabody & Co. Incorporated Kuhn, Loeb & Co. Incorporated Lazard Freres & Co. Lehman Brothers Carl M. Loeb, Rhoades & Co. Paine, Webber, Jackson & Curtis White, Weld & Co. Incorporated Dean Witter & Co.

as Representatives of the Several Underwriters

By Merrill Lynch, Pierce, Fenner & Smith Incorporated

J. H. Sedlmayr, Vice President

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3029 KLINGLE ROAD, N.W. WASHINGTON 8. D. C.

TEL. 244-6000

June 2, 1964

### Registration No. 2-22400

Dear Sirs:

In accordance with Rule 424(b) of the General Rules and Regulations under the Securities Act of 1933, as amended, there are enclosed herewith 25 copies of the Prospectus of the Corporation dated June 2, 1964.

Such Prospectus is in the exact form used in connection with the public offering of the shares of Common Stock covered by the Registration Statement referred to above.

Very truly yours.

COMMUNICATIONS SATELLITE CORPORATION

Secretary

Securities and Exchange Commission Washington, D. C. 20549

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KNOW ALL MEN BY THESE PRESENTS, that each of the undersigned directors of COMMUNICATIONS SATELLITE CORPORATION, a District of Columbia corporation, which is about to file with the Securities and Exchange Commission, Washington, D.C., under the provisions of the Securities Act of 1933, as amended, a Registration Statement on Form S-l for the registration under said Act of 10,000,000 shares of Common Stock, without par value, of said Corporation, hereby constitutes and appoints Leo D. Welch, Joseph V. Charyk and Allen E. Throop his true and lawful attorneys-in-fact and agents, and each of them (with full power to act without the others) his true and lawful attorney-in-fact and agent, for him and in his name, place and stead, to sign such Registration Statement and any and all amendments thereto, with power where appropriate to affix the corporate seal of said Corporation thereto and to attest said seal, and to file said Registration Statement and each such amendment, with all exhibits thereto, and any and all other documents in connection therewith, with the Securities and Exchange Commission, hereby granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform any and all acts and things requisite and necessary to be done in and about the premises as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, may lawfully do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands and seals on the respective dates set forth below.

	(L.S.)		(L.S.)
John T. Connor, Director		George L. Killion, Director	
April , 1964		April , 1964	
	(L.S.)		(L.S.)
George J. Feldman, Director		Byrne Litschgi, Director	
April , 1964		April , 1964	
	(L.S.)		(L.S.)
Beardsley Graham, Director	**************************************	Leonard H. Marks, Director	
April , 1964		April , 1964	
	(L.S.)		(L.S.)
Sam Harris, Director		Bruce G. Sundlun, Director	
April , 1964		April , 1964	
	(L.S.)		(L.S.)
Edgar F. Kaiser, Director		Sidney J. Weinberg, Director	•
April , 1964		April , 1964	
	(L.S.)		(L.S.)
David M. Kennedy, Director		Leonard Woodcock, Director	
March , 1964		April , 1964	

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KNOW ALL MEN BY THESE PRESENTS, that each of the undersigned directors and officers of COMMUNICATIONS SATELLITE CORPORATION, a District of Columbia corporation, which is about to file with the Securities and Exchange Commission, Washington, D.C., under the provisions of the Securities Act of 1933, as amended, a Registration Statement on Form S-1 for the registration under said Act of 10,000,000 shares of Common Stock, without par value, of said Corporation, hereby constitutes and appoints Leo D. Welch, Joseph V. Charyk and Allen E. Throop his true and lawful attorneys-in-fact and agents, and each of them (with full power to act without the others) his true and lawful attorney-in-fact and agent, for him and in his name, place and stead, in any and all capacities, to sign such Registration Statement and any and all amendments thereto, with power where appropriate to affix the corporate seal of said Corporation thereto and to attest said seal, and to file said Registration Statement and each such amendment, with all exhibits thereto, and any and all other documents in connection therewith, with the Securities and Exchange Commission, hereby granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform any and all acts and things requisite and necessary to be done in and about the premises as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, may lawfully do or cause to be done by virtue hereof.

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A brief summary of financial proposals filed with and actions by the S.E.C.

(Issue No. 64-5-4)

Washington, D. C. FOR RELEASE May 6, 1964 (Supplement)

Communications Satellite Files. Communications Satellite Corporation, 3029 Klingle Road, N. W., Washington, D. C., today filed a registration statement (File 2-22400) with the SEC, seeking registration of 10 million shares of common stock, to be offered for sale at \$20.00 a share. One-half of the issue (5 million shares) is to be offered for subscription by communications common carriers authorized by the Federal Communications Commission to own stock of the Corporation. The remaining 5 million shares (plus any shares not subscribed for by the carriers) will be underwritten and offered by the underwriters to the general public. The underwriting commission will be supplied by amendment. There will be 11 managing underwriters of the public offering, as follows:

Merrill Lynch, Pierce, Fenner & Smith Inc. 70 Pine Street, New York City

Blyth & Co., Inc., 14 Wall Street, New York City

The First Boston Corporation 20 Exchange Place, New York City

Kidder, Peabody & Co. Inc. 20 Exchange Place, New York City

Kuhn, Loeb & Co. Inc., 30 Wall Street, New York City

Lazard Frères & Co., 44 Wall Street, New York City Lehman Brothers One William Street, New York City

Carl M. Loeb, Rhoades & Co. 42 Wall Street, New York City

Paine, Webber, Jackson & Curtis 25 Broad Street, New York City

White, Weld & Co. Incorporated 20 Broad Street, New York City

Dean Witter & Co. 45 Montgomery Street, San Francisco, Calif.

The underwriters have agreed to use their best efforts to offer the common stock in a manner to encourage the widest distribution to the American public. It is anticipated that approximately 350 other underwriters, and upwards of 700 securities dealers covering all of the 50 states, will participate.

The underwriters and dealers are not required to accept or fill any orders received. In the proposed purchase contract the underwriters agree, in making sales to persons other than dealers, to limit the number of shares which may be sold to any purchaser and to require each dealer to enter into an agreement to the same effect covering the shares sold by such dealer. Before selling in excess of 100 shares to any purchaser, each underwriter or dealer must first offer any such excess shares back to the managing underwriters for redistribution through other dealers.

The Corporation was organized under the Communications Satellite Act of 1962 to establish a global commercial communications satellite system. The Corporation is not a governmental agency and the United States Government has not guaranteed funds invested in the stock of the Corporation, the payment of dividends on shares of such stock or the profitability of the venture. It is anticipated that the satellites will be launched and operated as a joint venture, with foreign governments and telecommunications entities in foreign countries participating and sharing in the costs. Discussions with foreign groups, whose participation is necessary to the establishment of the system, are presently being conducted, but no arrangements have yet been made.

30 31 62 33 34 35 36 37 64 65 66 67 68 4. 5 5 7 6.9 70 7.1 72 73 74 75 76 77 78 79 80 81 82 83 84 39 40 41 42 43 44 45 46 47 12 13 14 15 16 B. Offering to Authorized Carriers 19 20 21 22 23 24 25 26 27 49 50 52 53 54 55 56 57 58 59

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c/o Manufacturers Hanover Trust Company 40 Wall Street New York, N. Y. 10015

May 6, 1964

REGISTERED MAIL
RETURN RECEIPT REQUESTED

Dear Sirs:

Communications Satellite Corporation (the "Corporation") has filed with the Securities and Exchange Commission a Registration Statement under the Securities Act of 1933 with respect to an aggregate of 10,000,000 shares of Common Stock, without par value, of the Corporation. A copy of the Preliminary Prospectus dated May 6, 1964 filed as part of such Registration Statement is enclosed, together with two copies of a subscription form.

As explained in the Prospectus, 50% of such shares are being initially reserved for offering to communications common carriers authorized by the Federal Communications Commission to own stock of the Corporation ("authorized carriers"). Your attention is called particularly to the matter in the Prospectus under the headings "Offering of Common Stock" and "Carrier Subscription Matters" describing the terms of offering, conditions of subscription by authorized carriers, and the allocation formula to be followed in the event that the Corporation receives subscriptions for more than the number of shares of Common Stock reserved for authorized carriers. Your attention is also called to the enclosed copy of letter from the Federal Communications Commission to the Corporation dated April 30, 1964 relating to the allocation formula.

If you wish to subscribe for shares of Common Stock of the Corporation reserved for authorized carriers, you must complete and sign the enclosed subscription form, and mail or deliver it to the Corporation, c/o Manufacturers Hanover Trust Company, 40 Wall Street, New York, N. Y. 10015, in sufficient time to be received by the Corporation at that address by 5:00 P.M. E.D.S.T. on May 26, 1964. Subscriptions received after that time will not be accepted by the Corporation.

Subscriptions which are mailed should be sent by registered mail, and a return envelope is enclosed for that purpose.

The Corporation may in its discretion waive any defect in completion of the subscription form except a failure to fill in the number of shares subscribed for or the name of the subscriber, and may but shall not be obligated to permit the correction of technical errors in executed subscription forms before acceptance thereof.

The Corporation will not make available any information with respect to any subscription or the total of the subscriptions by authorized carriers until after the subscription period has expired.

Each authorized carrier may submit only a single subscription. The second copy of the subscription form is for your file. No subscription can be accepted and no payment can be received by the Cor-

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poration until the Registration Statement has become effective, and as provided in paragraph 5 of the subscription form, any subscription may be revoked by you (in full but not in part), without obligation or commitment of any kind, at any time prior to the mailing or delivery of notice by the Corporation of its acceptance after the effectiveness of the Registration Statement.

It is contemplated that approximately seven days after the Registration Statement becomes effective there will be a closing (the "Closing"), at which the authorized carriers and the Underwriters who are purchasing the shares not subscribed for by authorized carriers will make payment for the shares purchasable by them. You will be given advance notice of the time and place fixed for the Closing. Under the provisions of the Purchase Contract to be entered into with the Underwriters, the Corporation or the Underwriters may, at the time and place fixed for the Closing, postpone the Closing for 24 hours, or at the expiration of 24 hours, for an additional period of not exceeding seven days. References in the enclosed subscription form to "the Closing" shall be deemed to mean the Closing at the time specified in the notice given to you, unless the Closing is so postponed to a later time, in which event it shall mean the postponed Closing at such later time. The Corporation shall not be obligated to give you notice of any such postponement other than by announcement to persons present at the time and place fixed for the Closing or for any such postponed Closing.

The time and method for making subscriptions, the provisions for acceptance thereof by the Corporation, and the method for making payment for the shares to be purchased by the subscribing carriers are set forth in the enclosed subscription form.

Very truly yours,

COMMUNICATIONS SATELLITE CORPORATION

By

Chairman and Chief Executive Officer

Enclosures:

Preliminary Prospectus Subscription Form (Original and Duplicate) Federal Communications Commission Letter Return Envelope

REGISTERED MAIL
RETURN RECEIPT REQUESTED

Communications Satellite Corporation c/o Manufacturers Hanover Trust Company 40 Wall Street New York, N. Y. 10015

Dear Sirs:

The undersigned, an "authorized carrier" as defined in Section 304(b)(1) of the Communications Satellite Act of 1962, hereby subscribes, at the price of \$20.00 per share and subject to the terms and conditions set forth below, for

of Common Stock, without par value, of Communications Satellite Corporation (the "Corporation"), or such lesser number of shares as may result from application, in the event of oversubscription, of the allocation formula referred to below.

- 1. It is understood that the above-mentioned shares of Common Stock will become available for purchase as part of the initial offering of 10,000,000 shares of Common Stock of the Corporation described in a Preliminary Prospectus of the Corporation, dated May 6, 1964, a copy of which has been received by the undersigned and which you have advised constitutes a part of the Registration Statement, filed with the Securities and Exchange Commission, covering such shares (the "Registration Statement"). As explained in the Prospectus, 50% of such shares have been initially reserved for offering to authorized carriers.
- 2. It is understood that this subscription must be received by the Corporation, c/o Manufacturers Hanover Trust Company, 40 Wall Street, New York, N. Y. 10015 before 5:00 P.M. Eastern Daylight Saving Time on May 26, 1964.
- 3. This subscription is subject to acceptance by the Corporation, by the mailing or delivery to the undersigned, at the address set forth below, of a notice of acceptance, accompanied by a copy of the final Prospectus constituting a part of the Registration Statement at the time when the Registration Statement becomes effective.
- 4. It is understood that, in the event that the total number of shares subscribed for by authorized carriers exceeds the number of shares reserved for and available for purchase by authorized carriers, the number of shares to be purchased by the undersigned will be determined by the Corporation after application of the allocation formula set forth in the Preliminary Prospectus (and also set forth in the letter from the Federal Communications Commission to the Corporation dated April 30, 1964, a copy of which has been received by the undersigned), to which the undersigned assents. In the event of such oversubscription, we understand that the Corporation will advise us, in the notice of acceptance referred to above or promptly after the transmittal thereof, of the number of shares which the undersigned is obligated to purchase in conformity with such formula. The undersigned agrees that the determinations of the Corporation reasonably made in the application of the allocation formula, including determinations made with respect to the combining of subscriptions of affiliated authorized carriers, the *pro rata* reduction of subscriptions, and the adjustment of subscriptions to multiples of 100 shares, shall be conclusive and binding.

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- 5. This subscription may be revoked by the undersigned (in full but not in part) by written or telegraphic notice of revocation addressed to the Corporation, c/o Manufacturers Hanover Trust Company, 40 Wall Street, New York, N. Y. 10015 ("Manufacturers Hanover"), provided that such notice is received prior to the mailing or delivery by or in behalf of the Corporation of notice of acceptance of this subscription.
- 6. The Corporation has advised the undersigned that it expects the Registration Statement to become effective on or about June 2, 1964, and that approximately seven days after the Registration Statement becomes effective there will be a closing (the "Closing") at which the authorized carriers and the Underwriters who are purchasing the shares not subscribed for by authorized carriers will make payment for the shares to be purchased by them, against the delivery of such shares. It is understood that the Closing will be at the office of Manufacturers Hanover, Room A, 4th Floor, 40 Wall Street, New York City, and that the Corporation expects to give the undersigned written or telegraphic notice of the time of the Closing at least four days before the date thereof. It is further understood that, notwithstanding the Corporation's acceptance of this subscription, the undersigned will have no further obligation hereunder unless the Closing takes place not later than July 10, 1964.
- 7. The purchase price for the shares to be purchased by the undersigned pursuant to this subscription (as adjusted in the event of oversubscription) will be payable against receipt by the person representing the undersigned at the Closing, or by Manufacturers Hanover as agent of the undersigned, of
  - (a) a certificate signed by an officer of the Corporation to the effect (i) that the Corporation has entered into a Purchase Contract with various Underwriters (the "Purchase Contract"), providing, subject to certain conditions, for (A) the purchase by them severally of a total number of shares of Common Stock equal to the difference between 10,000,000 shares and the aggregate number of shares (not exceeding 5,000,000) which at the time of execution of the Purchase Contract have been subscribed for by authorized carriers, and (B) the public offering of such shares at an initial offering price of \$20.00 per share, (ii) that the Registration Statement has become and remains effective, and (iii) that the sum of the aggregate purchase price for shares covered by accepted subscriptions of authorized carriers and the net proceeds (after underwriting discount but before expenses) received upon payment by the Underwriters for shares purchasable by the Underwriters under the Purchase Contract amount to not less than \$190,000,000;
  - (b) such opinions of counsel for the Corporation and such certificates of officers of the Corporation as may be required by the Purchase Contract to be delivered at the Closing to the Under-
    - (c) a stock certificate or certificates representing the shares to be purchased.
- 8. The Corporation may, at its election, by written or telegraphic notice to the undersigned, revoke its acceptance of the undersigned's subscription under any of the following conditions:
  - (a) Payments tendered by all authorized carriers at the Closing are for less than 90% of the shares purchasable by them;
  - (b) Payments tendered by the Underwriters at the Closing are for less than 90% of the shares purchasable under the Purchase Contract; or
- (c) The sum of the aggregate purchase price for shares covered by accepted subscriptions of authorized carriers and the net proceeds (after underwriting discount but before expenses) received upon payment by the Underwriters for shares purchasable by the Underwriters under the Purchase Contract amount to less than \$190,000,000.

It is understood that the Corporation will not exercise such right of revocation with respect to the subscription of any authorized carrier if it issues and sells shares to any other authorized carrier or to

9. If payment is not made at the Closing for the shares to be purchased by the undersigned, as provided below, the Corporation may, at its option, revoke its acceptance of this subscription or take appropriate action to enforce this subscription.

10. This subscription is not assignable. The undersigned agrees that, unless compelled by the Fed-
eral Communications Commission in accordance with the provisions of the Communications Satellite Act
of 1962 to transfer shares to another authorized carrier, it will not, during a period of 60 days after the
delivery of the shares of Common Stock purchased by the undersigned, sell or otherwise dispose of such
shares otherwise than to an authorized carrier which controls or is controlled by or is under common
control with the undersigned, and which makes a similar agreement with respect to sale or other disposition
of such shares during such 60-day period

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(a)	One of its officers	

b)	A bank representative or other representative	

[Insert name of bank representative or other representative]

If the undersigned is not represented at the Closing by one of its officers or by a representative identified above, it hereby appoints Manufacturers Hanover as its agent in connection with the purchase by the undersigned of shares of Common Stock pursuant to this subscription (the "Shares"), and authorizes and directs Manufacturers Hanover, on behalf of the undersigned, to make payment for the Shares in the manner stated below and to receive, and to acknowledge delivery of, the certificate or certificates representing the Shares.

- 12. Payment of the purchase price for the Shares will be made or arranged as follows: [Indicate below which procedure will be followed]:
- (a) By delivery to the Corporation at the Closing of certified check or official bank check in the amount of the purchase price for the Shares, payable to the order of the Corporation in New York Clearing House funds.
- (b) By arranging for Manufacturers Hanover to be given such bank advice as will enable it, at the Closing, to make payment to the Corporation of the purchase price for the Shares in New York Clearing House funds.

Such certified check, official bank check or bank advice will be in the hands of Manufacturers Hanover, Room A, 4th Floor, 40 Wall Street, New York, N. Y. 10015, by 10 A.M. on the second day before the date of the Closing unless, as indicated above, the undersigned is to be represented at the Closing by one of its officers or by a representative other than Manufacturers Hanover.

ance

This subscription shall be deemed to be ma with the law of the State of New York.	ide under and shall be construed and enforced in accord
Very	y truly yours,
d, 1964	Name of Carrier
	By
[Corporate seal to be affixed]	Title of Officer
e shares of Common Stock to be purchased be registered in the name of the subscribing er. Unless otherwise indicated in separate actions enclosed with this subscription, the	Address

Th will 1 carrie address shown here will be used and a single stock certificate will be issued.

Date

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## COMMUNICATIONS SATELLITE CORPORATION 3029 Klingle Road, N.W. Washington, D. C. 20008

c/o MANUFACTURERS HANOVER TRUST COMPANY
40 Wall Street
New York, N. Y. 10015

May 27, 1964

Dear Sirs:

Communications Satellite Corporation (the "Corporation") has previously sent you, as a communications common carrier authorized by the Federal Communications Commission to own stock of the Corporation, a letter dated May 6, 1964, transmitting a copy of the Preliminary Prospectus dated May 6, 1964 filed with the Securities and Exchange Commission as part of a Registration Statement under the Securities Act of 1933 with respect to an aggregate of 10,000,000 shares of Common Stock, without par value, of the Corporation. You were sent with the Preliminary Prospectus a form to be used in subscribing for shares, and your subscription has been received.

Enclosed herewith is a copy of a revised Preliminary Prospectus dated May 27, 1964, filed with the Securities and Exchange Commission as part of an amended Registration Statement, which, among other things, includes information as to the subscriptions received from authorized carriers.

We call your attention to the fact that your subscription cannot be accepted until the Registration Statement has become effective. We anticipate that the Registration Statement will become effective on or about June 2nd. It is expected that the closing will take place at 10:00 A. M., New York City time, on June 11th at the office of Manufacturers Hanover Trust Company, Room A, Fourth Floor, 40 Wall Street, New York City. You will at a later date receive definitive advice as to the time and place of closing.

Very truly yours,

COMMUNICATIONS SATELLITE CORPORATION

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Chairman and Chief Executive Officer

Enclosure: Revised Preliminary Prospectus