

GENERAL SCIENCE

Communications Satellites

Congress expected to act quickly on President's proposal to have privately owned corporation control communications satellites, Ann Ewing reports.

► THE UNITED STATES will launch at least six communications satellites this year, regardless of what action Congress takes in passing legislation concerning such satellites.

If the main proposals of President John F. Kennedy's proposed bill are adopted in the final legislation, any person with at least \$1,000 to invest could own a share in a "Communications Satellite Corporation." By using a very ingenious scheme, the President's bill allows private ownership of the proposed corporation, yet avoids any chance of monopoly control by large companies already in the communications field.

This would be accomplished by selling voting stock, at \$1,000 or more a share, to all those wishing to buy up to a total amount of a billion dollars. However, no investor would be permitted to own more than 15% of the total amount of this stock, which would be dividend-paying.

Another kind of stock, non-voting and not paying dividends, could be issued only to communications common carriers approved by the Federal Communications Commission.

Hearings on the President's proposed legislation will be held by the Senate Aeronautical and Space Sciences committee starting Feb. 26, at which time another bill concerning communications satellites, also introduced by Sen. Robert Kerr (D.-Okla.), will be considered. The main difference between the President's and Sen. Kerr's bill is that the latter provides for private owner-

ship of the corporation only by communications carriers.

Although there are no problems concerning launching of communications satellites this year, some legislation is needed to settle the question of ownership so that future plans can be made firm. Lively debate but no strong opposition is expected to passage of such legislation at this session.

Legislation identical to both Senate bills has been introduced in the House. There, however, the President's bill was sent to the Interstate and Foreign Commerce committee, while the other went to the Science and Astronautics committee.

Of the six communications satellites to be launched in 1962, two are privately financed, the others built with Government funds. All are experimental, aimed at eventual development of a worldwide satellite communications system.

The six include two "active" satellites financed by American Telephone and Telegraph Company, the first scheduled for launching by the National Aeronautics and Space Administration in May. The NASA satellites include a "passive" Echo II in a polar orbit, an "active" Syncom at a 22,300 mile altitude and two Relays, which are also "active," to test two-way telephone, telegraph and television communications between the U. S. and Europe.

It has been predicted that a low-orbit communications satellite system could be in operation by the middle 1960's.

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MEDICINE

Space Suits for Sick

► SPACE SUITS are making walking and working possible for bedridden victims of strokes similar to that suffered by President Kennedy's father, Joseph P. Kennedy. Last December, the elder Kennedy had a stroke on the left side of the middle part of the brain that left him partially paralyzed and impeded his speech.

A stroke, known in medical terms as a cerebral vascular accident, may be described as a slowing down of the flow of blood from a lesion or clot in the brain which results in a sudden loss of muscular power, or paralysis. Full recovery from the paralytic effects depends largely on the location and severity of the stroke.

When a stroke is severe, the result may be lack of proper tone in the blood vessels causing a drastic lowering of blood pressure that makes it impossible for the stroke victim to stand or even sit up without blacking out or losing consciousness.

U.S. Air Force physicians theorized that

pressurized space suits adapted for such patients might restore the necessary tone to the blood vessels so that blood pressure would be normal, enabling the patient to sit, stand and even walk. They based this theory on the fact that space suits are designed to maintain normal circulation of blood that otherwise would be impeded by stresses in space flight such as high altitude, sudden acceleration and deceleration.

Research by Col. William Marett and Capt. Myron R. Smith, physicians with the Aerospace Medicine Division of the Office of the Surgeon General of the Air Force, demonstrated the validity of this theory. The first civilian to benefit was Mrs. Sandy Waldrup, a housewife of Dallas, Texas.

Mrs. Waldrup, a polio victim, had been chronically ill since her teens. The polio had so affected her nerves that she suffered constant intense pain. To relieve this pain, the nerve pathways were cut in the spinal cord, resulting in damage to the blood

vessels similar to that from a stroke. She could not walk or stand without fainting.

Mrs. Waldrup had heard about the Air Force work with pressure suits. Her doctor wrote Vice President Lyndon B. Johnson, Chairman of the Space Advisory Council, asking him if the pressure space suit might be used by his patient.

Air Force physicians and medical technicians fitted the young matron with the lower half of a space suit, with a hand-pump that she could use to provide the needed pressure. Shortly after, Mrs. Waldrup attended her first football game in years and, what for her was even more important, cooked the first meal for her family in years.

Space suit trousers have enabled a farmer in Illinois, afflicted with a rare disease that adversely affected his blood pressure, to walk again and even do heavy farming chores after years of an invalid existence.

A stroke victim in Santa Monica, Calif., and another in Los Angeles, both bedridden, now are walking again in their Air Force space suits.

Air Force aerospace medicine experts predict that obsolete space suits will bring new hope to many such patients.

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SPACE TROUSERS—An Air Force major checks the blood pressure of a patient who is able to walk again because he is wearing pressurized space trousers that restored the necessary tone to his blood vessels. Space suits designed to maintain normal blood circulation of men in stress of flight can also be used for stroke victims and others with severe circulation problems.