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COMMENTS ON APOLLO 11 FOR KANSAS CITY STAR

There is much in this country's space program which demonstrates that it is indeed a wise investment for America's future. Although the space flights themselves, such as Apollo 11, receive the greatest attention, contributions to the fields of education, medicine, communications, meteorology, and many more are a major contribution of the space program.

In the field of medicine, the space program has required a more exact science of medicine that we have ever known. Due to research initiated by and pursued in the space program, we are learning much more about the human body and how we may enrich our lives.

Computer techniques that have clarified photographs televised across the expanse of space are now being used to make medical X-rays more revealing. These techniques remove irrelevant details and enhance those that doctors desire to study.

At the University of Kansas Medical Center, improvements have been made in a procedure which has previously been considered cumbersome and unsatisfactory for the patient. In analyzing the oxygen consumption of patients while they exercise, Medical Center staff provides patients with comfortable helmets resembling those of the astronauts. This procedure eliminates the routine of wearing a nose clip and breathing through a mouth tube, and is most certainly of greater comfort and benefit to the patient.

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Neurological diseases such as Parkinsonianism may soon be discovered earlier and as a result the patient may be able to attain medical assistance at an earlier stage of his illness. A device developed to register micrometeorite hits on spacecraft has been adapted to detecting muscle tremors.

In the field of communications, the space program has revolutionized world-wide communications and has made education available to people in every area of the world. In fact, applications of space research to the area of communications have achieved a greater degree of visible success and immediate payoff than in any other area of the space program. Communication satellites offer tremendous advantages because of the flexibility and versatility of the services they provide. The capability for providing high quality communications links for transmitting voice, television, and data traffic between a few large terminals by satellites has been demonstrated and reduced to commercial operational practice. Improved crops and food production, savings of life and property damage resulting from severe weather and increased safety and efficiency of air and sea transportation are other important benefits resulting from improved communications techniques. As a result of flights such as Apollo 11, the coming decade will see tremendous improvements in the communications field. Sending large amounts of data and other information over great distances will be possible at a relatively low cost. Because of the nature of the communications procedure when utilizing an orbiting satellite

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it is not inconceivable to think of being able to place a long distance telephone call to anywhere in the world for the sum of twenty-five cents.

Meteorology is another science which has derived substantial benefits from the technology utilization program of the space effort. Benefits relate to all areas affected by the weather and atmosphere, including tangible benefits in agriculture, transportation, industry and commerce, and urban pollution. Meteorological advances, resulting from space research, have meant better use of natural resources such as wind and solar energy as power sources. Also, weather satellites have the potential to save both lives and property through more accurate forecasting. It is well within the grasp of the United States to be able to make highly reliable weather predictions of up to one full week in advance in the coming years.

Possibly the most enduring contribution of the space program to our future as a Nation may be found in the field of education. The United States has trained thousands of scientists under space grants, as almost \$800 million has been distributed directly to colleges and universities under the space program. The space program has also contributed to and is involved in the development of new techniques and methods for teaching at all levels. Several suitable programmed machines have been developed for drilling students in spelling, syntax, arithmetic, leaving teachers relatively free for more creative aspects of education.

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In addition to those areas of American life I have mentioned, there are others in which the beneficial effects of the space program will soon be visible. In the near future navigation/traffic control satellites will provide a much greater ability to track ships at sea, as well as providing the capability of more accurately spacing aircraft in the airways to enhance the safety of air-travel.

Also, earth resources satellites, through the use of an infrared sensing device, will soon be able to do such tasks as spotting forest fires from space and measuring the depth of snow on a mountain range, making it possible to determine how much water runoff may be expected during the spring months.

It is quite clear that the space program is more than just adventure and costly experimentation. It has had beneficial effects on all Americans; it has enriched us all. More important, however, are those benefits from space research which will become apparent in the next five years. Because of Apollo 11 and her sister space flights, our knowledge of the universe and of our life here on earth has not only increased, but will continue to grow measureably in the near future.