● by ALFREDO B. AMORES ●

SCIENCE, circa 1938 ushered man into the Atomic Age.

SCIENCE, circa 1957 brought man, nay, rocketed man into a whole new fascinating age — the Space Age. Ironically, it was the Russians who initiated man into the new age when on October 4, 1957 she launched the world's first artificial satellite into orbit — Sputnik I. After that came more space vehicles. The US pencil-shaped Explorer I orbited and bolstered the free world's morale. Other space probes such as Project Farside, Project Argus, Luniks and US moon-probes joined the spacial circus. The findings of all these space investigations have proved fascinating and have radically changed some of our time-honored concept of the universe. Vanguard I for example proved that the earth is actually slightly pear-shaped and Lunik III suggested that the moon may be egg-shaped after all.

ALL this is made possible only because of our advanced science of rocketry which developed around Newton's innocent observation that action equals reaction. Rockets themselves are not new. In recorded history the Chinese were the first to use rockets. Theirs then were very much similar to our local version of ICBM's — the "kwetis" which is of course used for more peaceful and festive purposes.

ROCKETS of design and purposes as present-day ones were considered before as fantasies and were extensively used only in science-fiction adventures. It was only after Germany rained England with her "vengeance weapon number two", commonly called the V-2 rocket that the world fuly realized the awesome military possibilities of rockets. It will be noted that Germany developed rocketry to such a degree and refinement that our present liquid-fuel rockets are of essentially the same construction as the V-2.

AFTER the defeat of Germany, the US captured about 100 V-2 rockets and nearly the same number of German rocket scientists under the leadership of Dr. Wernher Von Braun when they overrun the V-2 assembly plant in the Hartz Mountains. The Russians captured a similar number of German rockets and rocketmen.*

HOWEVER, the US did not use them in the manner that Russia did. She used them for upper atmosphere research and ramjets research, a field in which the German rocketmen practically know nothing. In so doing the US lost five precious years to the Russians in the space race. The Russians used their rockets and rocketmen in the field they know best and immediately set up a long-range missile program. Sputnik I crowned the success of this program.

SEVERAL reasons have been advanced by many qualified sections of the United States. Among these is the military reason.

The UNITED STATES at that time did not feel pressed for a rocket crash program because of her impressive triple-ring of overseas military bases and her equally powerful Strategic Air Command. The Russians, however, devoid of an equally impressive bomber force had to rely on a successful missile program. But at any rate, what may be the reason behind America's course of action, it was probably her mistake number one in the impromptu space race.

The US satellite program was not begun until 1950 in connection with her participation in the International Geo-physical Year (IGY). The three US armed services, the Army, the Navy and the Air Force submitted their respective proposals for the satellite program.

The Airforce Project Atlas was turned down because it could not promise a delivery date. The Army's Project Orbiter and a proposal to place a minimum satellite in orbit without instrumentation as soon as possible in order to gain international prestige over the Russians was likewise turned down.* It will be noted that as early as 1948 there were proposals to put a satellite in orbit. However, lacking in military value, it was ignored.

The NAVY's Project Vanguard was readily accepted. It was a sophisticated plan to place a satellite in orbit complete with instrumentation and data-gathering devices.

THIS was probably her mistake number two. As it turned out the Vanguard project was plagued by a series of "successful failures" so that the Army and the Airforce were finally given the nod to join the space race. The Army promptly placed successfully into orbit Explorer I 118 days after Sputnik I. Later the Airforce launched successfully a giant 4-ton Atlas satellite as part of its Project Score on December 18, 1958. The Vanguard project was not given up, however and the Navy was able to launch successfully three of her ten Vanguard satellites.

HOW do things stand in this space race? Joseph Myler, writing for United Press International had this to say:

"xxxx There is no doubt that our satellites and probes have pried more secrets of closed-in space than Russians have. America has put 12 satellites into orbit to their three. It has launched three space probes

*It became a common joke after successive Vanguard failures that the Russian German rocket scientists are better than the US German rocket scientists.

and so have they. Two American probes got only a quarter of the way to the moon. One went into orbit around the sun.

"BUT in all categories the Russians were the first with the most. They launched the first satellite and the first sun rocket. They were the first to hit the moon and the first to launch a rocket into an earth-moon orbit."

TO the US credit might be added Project Farside, less publicized though equally spectacular. It shot the first earth matter outside the earth's gravitational field. There was also the Able-Baker project which produced the first animals to taste of space and come back alive (the Russian space dog Laika was not recovered). The fact that the US satellites are smaller than of the Russian (except the 4-ton giant Atlas satellite) is actually a triumph in miniaturization. Vanguard I for example, weighs only about 21 pounds though fully instrumented.

RUSSIA's Sputniks and Luniks have virtually shocked America out of complacency and into implementing a crash space program designed to overtake and surpass the Russian space lead. National Aeronautics and Space Administration head T. K. Glennan predicts that in three to five years from now the US may have rockets twice as powerful as Lunik III and in six to seven years clustered giant rockets capable of hurling tons of matter to interplanetary space.

THAT these two super-powers will finally catch up with each other in the space race is just a question of time. It is therefore best to view these new marvels neither as Russian nor American achievements but, as someone pointed out, as achievements of mankind. For indeed, the military threat of these

SATELLITES, loaded with nuclear bombs can be placed into orbit. At a given command from an earth base these deadly satellites can finish the war --- and mankind in less than an hour. A military base on the moon or even earth-based war rockets like the ICBM's are just as devastating.

HOWEVER, even this very dark and foreboding cloud of their destructive threats has its silver linings. The utter destructive capacity of these war devices makes war futile and obsolete. With these devices, nothing can be gained by war — only for self-destruction. In an all-out war with atomic and space age war machines a power can only be defeated, if not totally annihilated — together with the rest of mankind.

THE peacetime uses of these vehicles are as marvelous as they are varied.

AMERICAN space instruments for example discovered a deadly radiation belt around the earth thus helping find a safe course for future space travellers. Russia's Lunik III gave us our first photograph of the hidden side of the moon.

ROCKETS can send mails halfway around the globe faster than the postman can deliver it to your house from the post-office a block or two away. A stationary of orbiting satellite can serve as television relay stations making global television possible.

SPACE vehicles can also serve as observatories. Lunik III and the earlier satellites have proved to be novel astronomical tools. Russia has already announced plans to send a space vehicle to observe our neighboring planets.

A more earth-bound use of these space observatories would be for a more accurate weather forecasting

that aging and cancer might be caused by some cosmic radiation which constantly bombards the earth. If this can be proven, a way might be found to shield the earth from this deadly radiation.

SPACE satellites too can prove or disprove Arhennius panspermy theory. Nobel prize winner Svante Arhennius contends that space is teeming with microorganisms and life spores. Some of them will no doubt perish in space but will continue to live in suspended state of animation for months, for centuries or aeons until they settle upon a planet which happens to come their way. If planetary conditions are ideal, life evolution begins. The panspermy theory can also explain the mysterious appearance of plagues from centuries to centuries. If his theory is proven a way might be found to protect the earth from further invasion of harmful bacteria. This will then lead the way towards the elimination of all bacteria-caused diseases.

THEN, too, there is the fascinating possibility of interplanetary travel. To this end both the US and Russia are preparing space vehicles and spacemen for man's first taste of space.

JUST when these things can be fully realized one cannot definitely say. But we can judge our progress by noting that barely two years after the first earth satellite orbited, we made a rendezvous with the moon. Even before this issue will be out, major breakthroughs might be achieved which will greatly accelerate our progress in this space adventure.

INDEED, Man has at last come to a great crossroad. With his

The Greatest Show From Earth

(THE SPACE EXPLORATIONS)

space vehicles is poised over the entire mankind as mankind too is the beneficiary of their peacetime uses.

THE military possibilities of these space vehicles are as horrible as their peaceful uses are a tremendous boon to mankind.

and a better understanding of weather mechanisms and finally weather control (How would you like snow in Cebu?).

SCIENTISTS are also sending lower animal forms to space to discover the effects of cosmic radiation on them. There is a theory

well-expanded science of atoms, rockets and space he can build himself a heaven-on-earth or blast his earth to hell. Every rocket blasting off to space, every beep-beep of a space satellite transmits not only its scientific message to earth but also a more important message as well --- love one another or die