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3 WHERE IS THE DANGER HIDDEN ?

APROPOS THE CAPE KENNEDY TRAGEDY 6

by

6 Yuriy Marinin 9

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WHERE IS THE DANGER HIDDEN ?

APROPOS THE CAPE KENNEDY TRAGEDY

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Comments by
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Scientific Commentator

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The catastrophe having occurred at Cape Kennedy on 27 January 1967 is a tragedy not only for United States of America. The sorrow of American people is shared by peoples of all countries. In reality, cosmonauts are somehow representatives of the whole Earth, of the entire mankind in boundless Cosmos, no matter what the country has dispatched them. On 27 January 1967 three American cosmonauts perished not in the Cosmos, but on the ground; but does this change anything ?

It is stated at times that cosmonauts are the "pick"of a nation. In any case the perished Virgil Grissom and Edward White are the "pick" of American cosmonauts. The third perished cosmonaut Roger Chaffee still had no opportunity to assert himself in space flight, and now will no longer be able to do so. All the perished are representative of three "generations" of American cosmonauts.

Grissom is a member of the very first group of cosmonauts, the celebrated seven already selected in 1959. The cosmonauts of this group were prepared for flights of the first American manned satellites "Mercury", and upon accomplishing the flight aboard these spaceships, underwent retraining and participated in "Gemini" flights. Upon new training, the representatives of the first seven (of which only three remained "active", including Grissom) were included into the composition of the crew of spaceships "Apollo".

Grissom was commander of the first manned satellite "Gemini". Had not the tragedy of 27 January occurred, the first spaceship "Apollo" would have entered the Cosmos with a crew headed by Grissom. The confidence in Grissom, entrusted with the most responsible flight, was not casual. His flawless trade, enviable control, iron health were still with him despite his being already nearly forty. His first space baptism was obtained long before 1965, when he became commander of the crew of the first manned space craft "Gemini". His flight over ballistic

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(*) This Soviet press circular was kindly made available by M. Bogachev, Press Attaché, Soviet Embassy, Washington, D.C.

trajectory aboard an experimental "Mercury" was already performed in 1961. The satellite flew about 500 km, reaching the maximum flight altitude of 200 km. After splash down the satellite unexpectedly began to sink. This is when Grissom's control had the opportunity to manifest itself: he managed to escape. Had the loss of 27 January not been nearly instantaneous, Grissom would most certainly have managed to save his crew and save himself.

White is a member of the second group of cosmonauts, selected in 1962. The cosmonauts of this group were directly trained for Gemini flights, and later to flights aboard Apollo spaceships.

The White's name was no less illustruous than Grissom's. White was first in the U.S.A. and second in the world to accomplish the egress in the open space or the space walk. He was also first in the world to perform space maneuvers by using a manual reactive device.

Finally, Chaffie, who just hit the thirties, was included in the third group of cosmonauts, selected in 1963. This group was trained for Apollo flights. Chaffie was the only "freshman" in the crew for the first piloted spacecraft.

Thus, what happened to American cosmonauts on that black friday at Cape Kennedy ? "Saturn 1-B" was prepared on the pad for a flight alongside with spaceship Apollo. The latter was to become the first manned spaceship of the Apollo series, and was designed to orbit around the Earth during a prolonged time (up to 14 days). The flights of Apollo spaceships around the Earth were expected to serve as rehearsals for the launching of a similar spaceship to the Moon. The landing of cosmonauts on the Moon was planned for the years 1968-1969. Apparently, the catastrophe of 27 January has inflicted a sensible blow to the plans of landing on the Moon before the end of the current decade, that is, prior to 1970.

The launching of Apollo-1 was marked for 21 February; however, the craft was delivered to the launching pad as early as 6 January, and installed on the carrier rocket. The checking over of the ship and the rocket, the preparation for the flight and the training of cosmonauts, envisaging in particular a simulated flight on the ground, was to be carried out in the course of about one month and one half. One such rehearsal was precisely scheduled for 27 January.

A trouble in the on-board electronic system has been noted on the eve of blast-off time, but, apparently, this trouble has been overcome and eliminated. The cosmonauts thus took their places in the cabin, battened down the hatches and lowered the helmet's visors. While in the cabin, Apollo's, as well as Gemini's and Mercury's cosmonauts, breathed pure oxygen, which is fed to helmets and to the cabin. The simulated flight has begun. The cosmonauts maintained communication with their ground managers by radio. Moreover, a television camera was installed in the cabin, allowing to observe the cosmonauts from outside. Suddenly, the ship was set afire. A flare appeared on the television screen, after which the image vanished. The cosmonauts had just enough time to transmit the words "fire in the cabin". Visibly, they perished instantaneously.

What was the cause of the fire ? Obviously, trouble must have again occurred in the electronic system, and wires were set afire. There was an instantaneous flash in pure oxygen and death came ! Because of flames and smoke the cabin was inaccessible to ground personnel for some time. When finally the hatches were opened, it became clear that the aid was overdue. The burned bodies of the cosmonauts were left in the cabin for some time, so as to allow to determine from their position at the time of death the character of the catastrophe, and possibly its causes. So far, no official communiqué relative to these causes was issued. And it cannot be expected that fast. A spacecraft is a very complex system, and time is required to decipher it. Haste is not permitted and hasty conclusions are inadmissible. Evidently, if the cause is not ascertained and eliminated, the life of other cosmonauts will be endangered.

The atmosphere of pure oxygen is potentially a fire hasard. When decision was made as early as 1959, to utilize pure oxygen aboard Mercury satellites, some of the American specialists pointed to that danger. The oxygen-nitrogen atmosphere of the type used on Soviet spaceship-satellites, is safer. However, the equipment for the creation of pure oxygen atmosphere carries less size and weight; it is also simpler and cheaper than that designed for the creation of oxygen-nitrogen atmosphere. This is why Americans have chosen the oxygen atmosphere for Mercury and Gemini satellites and later for Apollo spaceships. Could it be that only pure luck or mere chance had protected Mercury and Gemini satellites from fire ? If this should be so, the oxygen atmosphere would have to be ruled out from Apollo spaceships. And this would mean a radical modification of ship's design that would involve without any exageration several years. Obviously, it may still be found that oxygen atmosphere had nothing to do with it. Then it would be sufficient to correct the defect having caused the fire and to prevent the presence of analogous defects in the future. In this case, no modification in ship's design may possibly be required.

Grissom, White and Chaffie are not the first victims among American cosmonauts. But previous catastrophies did not draw particular attention insamuch as these cosmonauts perished aboard airacrafts. Cosmonaut Theodore Freeman was lost in 1964 on an airplane training assignment, while cosmonauts Elliott and Charles Bassett, the basic crew of Gemini-9 perished under analogous conditions aboard an airaplane. A substitute crew, consisting of Thomas Stafford and Eugene Sernan flew aboard that spacecraft.

The substitutes for the perished crew of Apollo-1 are Walter Schirra, having accomplished the first rendezvous in orbit, and two freshmen, Donn F. Eisele and Walter Cunningham (the latter being a Ph.D in physical sciences). We wish these cosmonauts a happy and safe flight.

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