

"ON TIME" MOONBOAT

AT 11.30 A.M. (Moscow time) on Saturday, 11 August 1962, Soviet Air Force Major Adrian Nikolayev took off from the Siberian desert in the spaceship Vostok III to orbit earth. Because the planet was turning beneath him, the major could not be back to his starting point until the same time on the following day. On the ground behind him, Lieut. Col. Pavel Popovich was assigned to wait until that time and then take off in another spaceship, Vostok IV, on a course that would put him directly behind and in sight of Major Nikolayev.

To accomplish his mission, Colonel Popovich had to leave exactly twenty-eight minutes before the half hour on which Major Nikolayev had left. And Vostok IV took off at 11.02 a.m. (Moscow time) on Sunday, 12 August.

The Colonel may have been ten or fifteen seconds behind schedule, but he couldn't have been more than that or he would have missed the connection. For the Major was traveling at a speed of five miles per second, and in a single minute he would have been 300 miles away.

Nothing remotely comparable to this performance of the two Russian cosmonauts (who came back to earth within six minutes of each other four days later—five days after Major Nikolayev left) has been done in America. The promptest rocket launch times on record here are minutes behind schedule, and the usual lag between timetable and reality runs into hours.

The Soviet superiority in timing undoubtedly reflects the Kremlin's inability to match the extravagance of the White House. Forced to "make do" with what they had, the Russian scientists used the same rocket components and component systems repeatedly, with the improvement in efficiency and dependability that usually results from such experience.

Responsible officials of the National Aeronautics and Space Administration (as opposed to the moon-race extremists) are frankly admiring of the "on time" exploit of the Nikolayev-Popovich team and the engineering skill it signifies. Injection of the Soviet spaceships into closely neighboring orbits also demonstrated noteworthy precision. But this is something rocket experts here feel is quite within present American capability, even though no proof exists. The confidence comes mainly from the last two Tiros satellites the U. S. Weather Bureau put up to study the cloudtops. Their orbits were very close to identical, with no special concentration on making them so.

Several conclusions about the tandem space voyage of the Russians can be drawn, despite the paucity of information released by the Soviet government:

1. It was a practice trip.

The purpose was the one the Russians stated: to put two spaceships aloft in sufficiently close proximity to effect rendezvous, and to track and control both spaceships simultaneously with the help of a few electronically equipped trawlers spotted around the planet's international waters, and to permit free and full communication between the spaceship occupants in preparation for the time when they would observe and advise each other in maneuvers required for coupling their craft.

2. It was an expression of confidence in the Soviet's continuing lead in space travel technology.

Like the Americans, the Russians originally intended to reach the moon in one swoop. They could just about make it with their present launching rocket if they used the launcher repeatedly to send the return-trip essentials to the moon and assemble them automatically before sending human explorers. If the Kremlin had felt any real threat of being passed by the Americans, they would have concentrated exclusively on the original plan and attempted the voyage in the next few years. But, seeing how far behind the Americans are, the Russians decided they had time to take an option. Without abandoning their original plan, they would adapt it to allow another experiment concurrently. The new experiment called for rendezvous of several rockets in orbit near the earth, followed by onward voyage to the moon with a return-trip rocket and return-trip fuel aboard.

3. The rendezvous practice voyage of Major Nikolayev and Colonel Popovich means that work on a bigger rocket, capable of twinning and thus carrying the round-trip cargo, was started two or three years ago, and has now progressed to the point that Soviet scientists are confident of its performance. Otherwise the Soviets would not have made the practice trip.

LETTERS TO THE SCIENCE EDITOR

LUNARCY

NOT ONLY does Dr. Warren Weaver's short article, "What a Moon Ticket Will Buy," (SR, August 4) point out a shocking comparison, but it also illustrates the extreme in short essayism.

Dr. Weaver has made us all think a bit more concretely about our part in the race for space, and SR has again come forth with a neat, crisp, and informative article.

LOUIS LARREY, JR.
New London, Connecticut

CLOUDY WEATHER

WHILE I AM DELIGHTED to see any new hypothesis that serves notice to firmly entrenched theories that their tenure is only an illusion, I must at the same time regard the newcomer with honest skepticism until his credentials have been completely and thoroughly examined. And so it is with the sweeping hypothesis advanced by Dr. F. W. Went (SR/July 7).

Upon examining his evidence as presented by you and by Dr. Went in his original paper I can only conclude that his novel hypothesis is, in part, in direct contradiction with one of the most firmly established principles of classical physics; namely, that electric charges are not created, they are only separated. Thus when Dr. Went maintains that the net positive charge of the atmosphere originates from airborne, electrically neutral, terpen molecules that suddenly acquire a positive charge when sunlight shines on them. I insist on asking just what he has done with the equal negative charge that *must* have been expelled from the molecule. For until he gets rid of the negatively charged particles the net charge of the air has not been increased in the positive sense one single bit. To be sure, his process might cause an increase in the number of positive and negative small ions in the air but then high energy cosmic rays do the same thing continuously at the rate of 160 ion pairs per cubic inch per second.

And, finally, I should point out that your account of Dr. Went's work presents credentials that even Dr. Went does not claim. At one point you state that the positive charging of the atmosphere by terpenes has been measured and was found to "—jump fourfold soon after dawn over vegetated areas only." If you refer to Dr. Went's original paper I'm sure you'll agree with me that this is only his reasoning as to what *might* occur.

DUNCAN C. BLANCHARD
Woods Hole, Mass.

EDITOR'S NOTE: SR's Science Editor reported Dr. Went as having written a statement of fact: that the positive electrical charge observable in the air above the earth—known as the "fair weather potential"—has been measured and has been found to jump fourfold soon after dawn over vegetated areas only. The sentence preceding this statement of fact was intended to be understood as Dr. Went's opinion, but it is possible to read the meaning Dr. Blanchard has read, and the Sci-

ence Editor apologizes for ambiguous phrasing.

Dr. Went's comment on Dr. Blanchard's letter follows:

"John Lear's interpretation of my suggestion concerning the energy production in thunderstorms and tornadoes is much clearer than I could have put it myself. The objection of Duncan Blanchard against my suggestion is of very fundamental importance. I gladly admit that I never should have made a concrete suggestion as to the basis of positive charge formation in the atmosphere. But let us face the fact—not contradicted by Duncan Blanchard, and usually disregarded by physicists interpreting atmospheric electricity—that according to all recorded measurements, and contrary to all physical theory, there is a continuous formation of positive charge in the atmosphere, unaccompanied by equivalent negative charge production. This positive charge formation increases several-fold a few hours after sunrise, only over land areas according to well-accredited physicists, whereas over the oceans this does not occur. I believe that the facts on which I based my analysis are correct, and the major objective I had was to point out the remarkable parallelism between thunderstorms and areas where volatile organic matter is released by vegetation."

MATTER OF FACT

I AM SOMEWHAT disturbed by Professor [Charles] Osgood's scientific logic as applied to his "peace race" which is reported in *Personality Portrait LXXIV* (May 5, 1962). He states that the "peace race" would work because Russia would fear the hostile feelings which would develop in America if she did not cooperate. I feel that the Russian atomic test series in 1961 is factual proof that Professor Osgood's logic does not hold. Russia carried out the tests without provocation (as evidenced by our lack of preparation for testing) and without concern for the obvious hostility it would generate in America.

WILLIAM H. KUEHNLE
New Haven, Conn.

EDITOR'S NOTE: Dr. Osgood replies:

"John Lear's 'Personality Portrait' was not designed, nor did it have the space, to give a detailed exposition of my proposal for graduated and reciprocated initiatives in tension-reduction. Beyond the reason for Soviet reciprocation he mentioned, the following should be added: Russian fear of a hot nuclear war (they lost 20 million in World War II); their fear of a rearmament Germany, particularly with nuclear weapons; their concern about the burgeoning new giant of the East, Red China.

"As to the breaking of the informal moratorium on nuclear weapons testing by the Soviets, I think that if one takes into account the fact that they had conducted about half as many tests as the West, the fact that they were behind us in weapons development (as President Kennedy stated), and the fact that we were threatening to break the ban ourselves at the time—then their action becomes understandable, although neither morally nor rationally defensible."

American Myths

(Continued from page 8)

most effectively described by novelists and poets is usually that of their youth, not the world of their mature years. They change with the times, but never as fast as the times, and the result is that literary mythologies are always out of date. That was true even in 1940, and it is vastly more true of the 1960s, when we are waiting to descry the outlines of what should become a third American mythology.

For there have been three distinct periods in American life, or at least in our values for living. During the first, American values were predominantly rural and the standards of conduct were those of an ideal country town like Concord, Massachusetts. During the second, which lasted from 1890 till the end of World War II, the values became urban and the new standards of conduct were those of New York and Chicago. There has been another shift in emphasis since 1945. The central cities are declining not only in population but in their power to set fashions, while factories are employing a smaller proportion of the labor force. In this new age the predominant values are suburban, and the emerging standard of conduct is that of a sophisticated suburb like Westport, Connecticut, or Mill Valley, California.

In the first age the representative American was either a frontiersman or lived on a farm. In the second age he worked in or managed or sold goods from a factory. In the third age he has become an organization man employed in an office or in one of the service industries—that is, unless he resigns from the organization and wanders over the country trying to recapture his own personality.

The American home in the first age was a log cabin or a farmhouse, in the second age it was a city apartment, and now—except for the rebels—it is a detached residence in the suburbs full of labor-saving machinery reduced to a family scale. In the first age the conflict portrayed in American fiction was often that of the single man against nature; in the second age it was that of the single man fighting against society in order to change it or rise in it. Now, in the third age, the conflict is more likely to be that of group against group or of man against himself.

In order for us to feel at home in the new landscape, in order to form a new image of the nation, and chiefly in order for us to realize ourselves as persons, we require, among other things, a new American mythology. "The experience of each age," as Emerson said, "requires a new confession,

and the world seems always waiting for its poet." This time the world has been waiting longer than it should, but there are signs in the fiction of the last few years that the new myths are beginning to appear.

A few characters in postwar fiction have already become legends. That most of them are rebels is a fact in which I find no ground for complaint. The standards of an emerging society are revealed by its rebels as much as by its conformists, and the rebels are easier to remember. Who after all was the Man in the Gray Flannel Suit? The phrase survives, but the man himself has disappeared from our minds like gray flannel suits from Madison Avenue.

Some of the new figures we do remember are J. D. Salinger's troubled adolescent in a world where every mature person is a phony, and Ralph Ellison's angry symbol of the American Negro as "The Invisible Man," and Norman Mailer's hipster or "White Negro," and Saul Bellow's portrait, in "The Adventures of Augie March," of a Jewish boy leaving the Chicago slums and wandering over three continents, not to make a fortune, but to find the answer to a simple question: Who am I? The question echoes through many recent novels, and it is a good question, too, one that helps to convey the puzzled spirit of this time, but it is still not enough. There has to be something more than a few rebellious characters asking representative questions before the new mythology comes into being, as it is certain to do; and I keep reading the new novels to find what shape it will assume.

FRASER YOUNG'S LITERARY CRYPT NO. 996

A cryptogram is writing in cipher. Every letter is part of a code that remains constant throughout the puzzle. Answer No. 996 will be found in the next issue.

EFS XSTLZEO HD BJMMSBB
QB EH WS WHCSG WO EFS
LEESTEQTHTB HD XSHXZS
KFH DHCPSCZO BTJWWSG
OHJ.

PLCO K. ZQEEZS.

Answer to Literary Crypt No. 995

He had occasional flashes of silence, that made his conversation perfectly delightful.

—SYDNEY SMITH.