A number of citizens of the Soviet Union, and
their guests from other countries, have visited the
Earth’s lower space regime; the Soviet in-orbit
space infrastructure, primarily the Salyut space
stations (or, as the Soviets say, “orbital stations”),
housed and supplied them there, more or less
continuously, for over a dozen years. During this
period the total number of hours that Soviet cos-
monauts have spent in space has overtaken and
is now much greater than the corresponding total
for U.S. astronauts. By all accounts, the Soviets
are more knowledgeable than the United States
in space biology and medicine; in a number of
technical areas, notably in the use of automated
docking systems, they routinely use techniques
that the United States has never demonstrated.

It is true, on the other hand, that the Space Shut-
tle now gives the United States significant
abilities that the Soviets do not have, but it
is widely believed on the basis of photographic
evidence available from unclassified sources that
the Soviet Union is developing both a small space
plane and a heavy-lift shuttle expected to be ca-

The Soviet space station program is the corner-
stone of an official policy which looks not only
toward a permanent Soviet human presence in
low-Earth orbit but also toward permanent Soviet
settlement of their people on the Moon and Mars.
The Soviets take quite seriously the possibility
that large numbers of their citizens will one day
live in space. Although the Soviets do not often
directly communicate detailed results of what has
been learned by and from the cosmonauts aboard
Salyuts, enough information is available to con-
clude that they are accomplishing much more than
rudimentary scientific investigations: they are pro-
viding the data, information, and experience re-
quired to design habitats and equipment which
will allow individuals to reside for the long-term
in space.

The Soviet approach to the development of
space capabilities differs significantly from the
American. Whereas the United States tends to ad-

thereby increasing its capability in a seemingl,
more evolutionary or progressive fashion. By thus
relying on systems flight-proved in earlier space
programs, the Soviets may have been able to re-
strain costs and minimize the time spent in de-
velopment and construction. The Soviet space
program and the U.S. satellite communications
industry are similar in that both allow for the
establishment of gradually evolving spacecraft
design, and it may be advisable for the United
States, in other selected areas of space applica-
tions, for example, to adopt some form of the So-
viet strategy. Already, NASA’s Solar System Ex-
ploration Committee (SSEC), emphasizing the im-
portance of system heritability, has advocated a
similar approach for planetary science.

The relative merits of automated and human
capabilities for performing work in space or, more
precisely, the criteria for establishing the optimal
mix of the automation and the human presence
for particular tasks, are the subjects of consider-
able debate in the United States. Although the
amount of time in space that American astronauts
have amassed is nontrivial, there is a certain de-
gree of unreality about this debate because it can-
not yet be grounded in extensive experience. The
Soviet Union, on the other hand, can draw on
a much greater fund of experience as they imple-
ment plans for integrating human and machine
capabilities for work on future space stations.

Perhaps the most important point to be made
here is that the United States and the Soviet Union
have cast the issue of humans versus machines in
different terms. U.S. space policy is to explore and
study space and to use it for general human ben-
efit—and, where appropriate, to involve human
beings in actual spaceflight. In addition, both the
United States and the Soviet Union use their
spaceflight programs involving people to enhance
their national images. Soviet space policy, how-
ever, goes further; it includes the goal of learn-
ing how human beings may reside permanently
in space, both as an end in itself and as a means
of serving their national purposes. To date, the
United States has not committed itself to perma-
nent human occupanc, of space as a national
goal.