SPACEFLIGHT

Cosmonaut

criticises

space effort
MOSCOW

In a remarkably frank inter-
view with the Soviet publica-
tion Nedelya, former cosmo-
naut and Star City official Lt
Gen Vladimir Shatalov has
criticised aspects of his coun-
try's space programme.
Commenting on the eco-
nomic return on Soviet space
research, Shatalov said that,
remote-sensing apart, there
was a "lack of purposefulness
and consistency".
There is an unsystematic
search going on, he said, with
a diverse range of experi-
ments. There is a lack of a
"good programme with precise
formulation of goals". This
was clearly due partly to the
general state of science in the
country, which is poorly co-
ordinated with the national
economy and remote from
practical needs, Shatalov said.
Much is being done in space
which is capable of producing
a considerable spin-off, he
said, but the crews "will bring
the results back and every-
thing will disappear down a
hole."
The effect of microgravity
on certain processes has not
been as predicted and, in some
cases, not as advantageous as
expected. This has slowed
progress, Shatalov said,
suggesting that this situation
could change if experiments
could be brought back to
Earth every six months.
"It is possible to use descent
capsules for rapid delivery; we
did conduct such an experi-
ment once [from the Cosmos
1443 heavy module docked to
Salyut 7 in August 1983], but
for some reason it was
forgotten.
"We carry out experiments,
wait six months to get them
back, spend a year studying
them, and only then do we
prepare the next experiment.
"At this pace, we won't set
up orbital workshops and
factories even by the year
2000. At the same time, tech-
nology on Earth has not stood
still. What seemed yesterday
to be economically advan-
tageous to do in space has now
already been done on Earth at
comparable cost."

Military astronauts named
US Air Force manned spaceflight engineers Capt Maureen Lacomb and Capt Craig Puz have been named as payload specialists on the Strategic Defence Initiative Shuttle mission called Star lab in March 1990.

Key Shuttle
valve fitted
KENNEDY SC

The processing of Shuttle
Orbiter Discovery, in prepara-
tion for its planned June 2
launch, has included the
fitting of a 43cm-long liquid-
hydrogen external-tank dis-
connect valve, a major modifi-
cation called for by the Rogers
Commission, reports Tim
Furniss.
A positive latch-open
design feature has been devel-

oped for the main propulsion-
system disconnect valve, to
replace a "flapper valve" and
to ensure that it remains open
during powered flight, even
in the event of an electrical
failure.
Other preparation activities
include testing of the main
propulsion system and check-
out of the Ku-band antenna
and payload recorder. A
payload interface test has
been delayed, however. Crew
escape system installation
and modifications to the chin
panel on the nose of the
Orbiter continue.
The installation of thermal

TV direct from orbit

Two Hughes HS376 spacecraft to be handed over in orbit to British Satellite Broadcasting in August 1989 will have three HOW high-power direct television broadcast channels, each with two 55W medium-power transmitters in parallel.

protective blankets on the
orbital manoeuvring system
pod decks also continues,
while the pods themselves
have been tested in the hyper-
golic maintenance facility.
They will be installed on
Discovery this month.
The first power-up of
Orbiter Atlantis is proceeding
well, according to Nasa. The
wings of the Orbiter are being
strengthened, and an elevon
cove seal, crew escape system,
and aft compartment wiring
are being fitted.
Tiles are being removed
from the right-hand payload-
bay door of orbiter Columbia
for structural inspection to be
made.
The final-assembly test
article mate test of solid-
rocket-booster segments
began on December 14. The
test is designed to validate
new tools required to put the
tighter-fitting field joints
together.

China

achieves

microgravity
success

BEIJING

Microgravity processing ex-
periments conducted during
the China 20 and 21 satellite
missions last August and
September have produced
encouraging results, says the
Chinese Academy of Sciences.
More than 80 experiments
included those to produce
"superconductors comprising
barium, yitrium, copper, and
oxygen in a more homogenous
form than possible on Earth."
The Academy also reported
that plants, micro-organisms,
and animals showed abnormal
growth patterns after they
had returned to Earth. Vege-
tables and grain seeds showed
"remarkable variations".
Experiments on 70 varieties
showed that microgravity can
accelerate or retard sprouting
and growth rates, and affect
resistance to insects.
After exposure to the
radiation and microgravity of
orbital flights, seeds of
cucumber, pine, tomato, green
pepper, barley, wheat, and
maize were found to sprout
higher, grow faster, and flower
earlier. Radish seeds became
more resistant to insects.

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