

THE MOST VALUABLE REAL ESTATE OFF EARTH

By ALAN WASSER

The *Clementine* team has recently published a spectacular mosaic of the lunar south pole, which they assembled from 1,500 pictures taken from lunar orbit by the "faster, cheaper, better" little spacecraft in February and March 1994. Just to the right of the center where the grid lines cross, is a short bright smear looking somewhat like a backslash (\), or a tilted apostrophe. That shining smear is a mountain top plateau which could be destined to become the most valuable real estate off Earth, the site of the first human settlement on the Moon.

On that mountain top, the Sun literally never sets. It just circles around the horizon every month. With a tower shaped solar power collecting system built on the mountain top (see "Power Tower" *Ad Astra*, Oct. 1990 p. 16) a colony would have full time solar power. Of course, a colony anywhere else on the Moon would have to endure approximately 14 days of darkness every month.

Even more important, it appears likely this Sun-capped mountain cools its toes in a lake of ice. The *Clementine* mosaic shows the mountain standing just inside the edge of a very large black spot which spreads north and east of the south pole. That big dark circle is a crater or depression so deep its bottom never sees the Sun. As described by the Naval Research Laboratory, "This depression probably is an ancient basin formed by the impact of an asteroid or comet. A significant portion of the dark area near the pole may be in permanent shadow, and sufficiently cold to trap water of cometary origin in the form of ice." The analysis isn't finished yet, but the *Clementine* data suggests a good chance that water ice might be present.

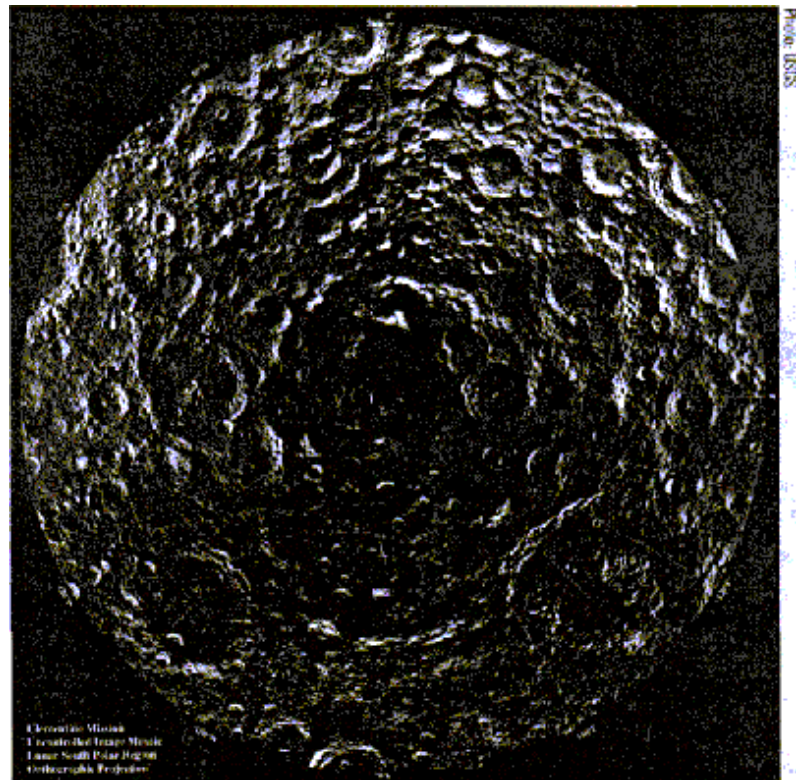
In the Moon's low gravity, and with no wind to worry about, a solar-power collecting tower could be built to amazing heights impossible on Earth. Hopefully, it could be built largely of locally available materials such as glass made from lunar sand. The height will be needed to catch as much sunlight as possible, allowing generation of enough electricity to power the retrieval and processing of the ice. Perhaps there will be ways to generate additional power from the extreme temperature difference between the top and bottom of the mountain.

It will be a fascinating place for people to live or visit; this strangely lit mountain top standing just above the Moon's darkest valley. The two week long nights elsewhere on the Moon might be profoundly depressing to some colonists. On this mountain, you can walk into daylight whenever you want it, darkness when you do not. It should be very easy to maintain the balance of heating and cooling. Furthermore, it

may well be useful that from one side of the mountain, the Earth is always peeking above the horizon, while not very far away, the other side is well shielded from the Earth.

One argument often raised against the idea of lunar "land grants," as an economic incentive for settlement, is that there is no particular reason to claim one lunar location rather than another—there would be no point racing to establish the first settlement since the reward for first place would be little better than the prize for second, third, or fourth place.

Here, however, is a uniquely valuable location. What if the first consortium to establish a permanent settlement on that plateau would be entitled to claim ownership of the mountain and much of the surrounding ice lake? If to maintain



Clementine mosaic of the lunar south

the claim they were required to maintain the settlement, then they would need to establish regular transportation to and from it: a rocket line between the Earth and the Moon. Once that was up and running, they could immediately start recouping part of their investment by leasing or selling pieces of their claim, which would also create customers for passage on their rocket line. ♦

Alan Wasser is a Vice President of the National Space Society.