

ANTARCTIC HEAT COLLECTOR

Surfaces with different orientations have different climates. Heat collectors copy their orientations from warm parts of the planet. A south wall collector in Albuquerque is parallel to the earth's horizon at a point about 700 miles north of the ant- arctic. The closest land, Dougherty Island.

It, therefore, receives plenty of winter sun but little during our summer. A collect- or tilted 45 degrees in Albuquerque is par- allel to the horizon at a point 1200 miles north of Easter Island in the pacific.

THE VALUE OF ORIENTATION

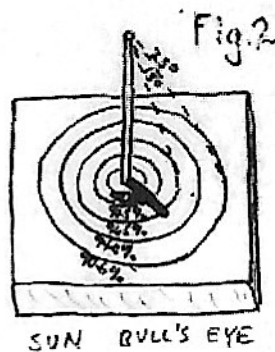
A surface intercepts the greatest pos- sible amount of sunshine when it is orient- ed perpendicular to the sun's rays.

The following table lists the % of possible sunshine intercepted by a plane misaligned the given number of degrees:

0 degrees	--- 100%
5 "	--- 99.6%
10 "	--- 98.5%
15 "	--- 96.5%
20 "	--- 94.0%
25 "	--- 90.6%
30 "	--- 86.6%
35 "	--- 81.9%
40 "	--- 76.6%
45 "	--- 70.7%
50 "	--- 64.3%
55 "	--- 57.4%
60 "	--- 50%
65 "	--- 42.3%
70 "	--- 34.2%
75 "	--- 25.8%
80 "	--- 17.4%
85 "	--- 8.7%
90 "	--- 0%

Evidently for orienting planes to receive sunlight pretty close is close enough. For if your angle is off as much as 25 degrees you still are intercepting over 90% of the possible.

An interesting tool to have when invest- gating the exposure of a given plane to sunlight is a bull's eye with a rod sticking out of it that reads by the shadow cast from the rod (which is called a gnomon) the efficiency of the orientation.



The sun moves in the sky during the day. The orientation of a plane with respect to the sun therefore changes continuously. I will talk about this later in a chapter that includes the subject of tracking.

SHADOWS

After dawn the helicopters took off from the base and headed down the valley. Their gigantic shrouds billowed as they were towed through the air.

The shadows passed like ominous dreams over the streets and rooftops of the town. No one looked up - the noise of the helicop- ters was deafening. On the outskirts of town the helicopters wheeled and took up stati- onary positions - you could see the crew men struggling with the lines as the shrouds were lowered still farther.

A large white patch of frost and snow, an island of grey and white amid greenish brown, marked their target.

A method of non-violent control for dissidents who were disconnecting from the power system and going solar.

No solar energy if you are in the shade. The used helicopters of previous wars were now a familiar sight.

Of course, the enraged people in the shadows had first shot at the helicopters, but the helicopters were so heavily armed it was no battle.

A few weeks in the shade and the solar houses were out of commission. A chill like that which you find in a deep shaded valley. The plants in the greenhouses going yellow like grass under a board.

People couldn't take it for long, the chilliness and the continual throbbing roar of the helicopters. The bored crewmen showering you with wrappers, orange peels, and soft drink cans out of their craft. The sight of the machine guns with whose per- formance they were all familiar after watch- ing ten years of war on television.

THE SUN RIOTS

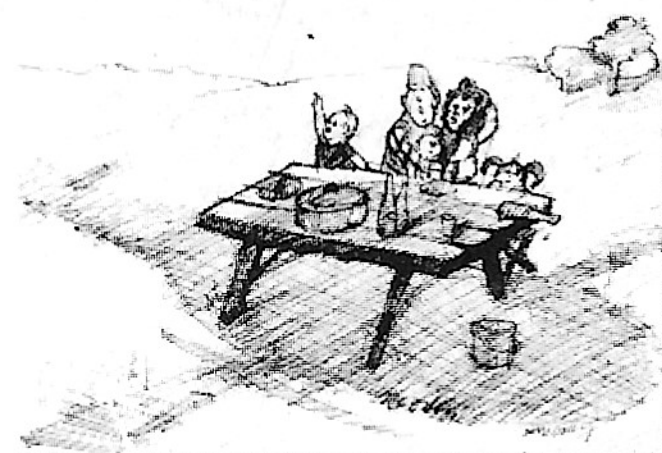
The chief of police in a so hwestern city is talking on the telephone - the city maintenance department - "I want reflect- ive blinds on every god damned window and if you can't get enough of them then tape tinfoil over the rest of the windows, now! Before that damn sun comes up again."

The bottom offices of City Hall and the police department have been gutted by fire - black streaks surround the windows which are now opaque and shiny with aluminum foil. The police are still unable to confis- cate mirrors, the matter is in the courts.

A week earlier at a demonstration a large van driven next to the crowd - the driver, a swarthy man of about 40, opened the back doors and began passing out foot- square mirrors. "Give 'em some sunshine."

With the rationing of gasoline this extravagant use of fuel was insult added to injury.

The local governments used the shrouds skillfully, shading a house, a demonstration or even, as in the case of X, a family pic- nic for as little as 10 minutes would often bring results.



What about the reflective film, i.e. could anchor from satellites like a fishing net on its buoys. The terminology of mega- tons of TNT survived, but now it was a measure of energy reflected away rather than dropped in.

Evidently fear that they wouldn't be able to reel it in and it might get off tar- get had made the service hesitate to use the big shrouds.