OUR NEAREST NEIGHBOR, VIII

By Walt Robinson

How often are you presented a table of boring facts about a particular subject? Unless you are a statistician or just like being tortured by a list of meaningless numbers, Moon facts can be just about as exciting as watching paint dry. So here are some fun analogies to make it more interesting!

The average distance to the moon is 238,000 miles. If you drove non-stop at 70 miles per hour, it would take you approximately 4.5 months to get there. A commercial jet airliner traveling at 550 miles per hour would do it in 18 days. Ford's most fuel-efficient car in 2004 got 36 miles per gallon. At the current rate of $2.15 per gallon, it would cost you roughly $14,213 for gas. And, if you lined up dollar bills end-to-end, from here to there, you would have amassed a fortune of some $2.3 billion dollars.

The moon's diameter is 2,160 miles, the distance from San Francisco to New York. If you ran laps around a football field (assuming a 1-mile track), you would run 8,640 laps. If you ran at a consistent 3 miles per hour, it would take you a month to run the diameter of the moon. Flying once around the moon is the equivalent of a round trip from New York to London.

The weight of the moon is estimated at 81 quintillion tons (that's 81 plus 18 zeros). In 2004, the average weight of a car made in the United States was 3,462 pounds. If you owned a tow lot, you would have to tow 2.3 trillion cars to equal the weight of the Moon. That would require a storage lot of some 8.25 million square miles. By the way, since the surface area of earth equals about 1.96 million square miles, we would need 4.2 earths to accommodate your lot — a violation all city ordinances on the planet.

Ah, the scorching summer temperatures we all dread! On the moon, the daylight side experiences a temperature of 273 degrees Fahrenheit — water boils at 212 degrees F. For reference, let's take a microwave oven as an example — microwaves are rated in watts, so if we use a microwave oven rated at 650–800 watts and use 40 percent of its available power, we reach temperatures of 225–300 degrees F. This would be equivalent to setting a stove burner on medium.

If you don't like scorching summer heat, maybe you fancy frigid winter temperatures. The night side of the moon reaches -244 degree Fahrenheit. The coldest recorded temperature on
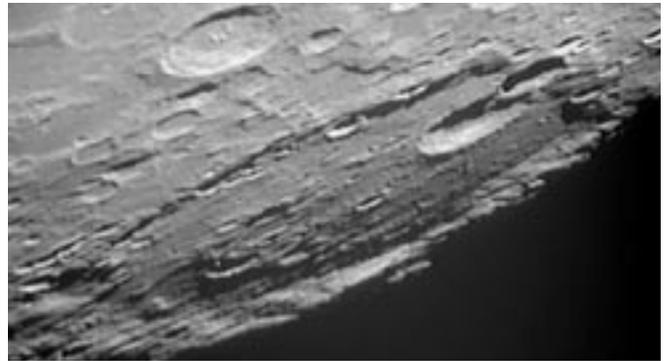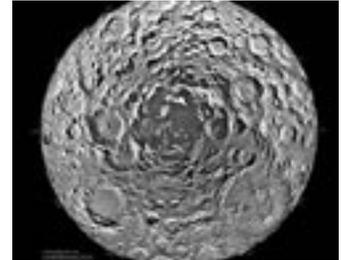
Third-quarter moon (top left)is full of interestng features. The South Pole Aitken Basin (top right), is 1,400 miles in diameter and an average 39,000 feet deep. The Moon's largest visible crater Bailly (above) is the size of West Virginia. Alan Sheppard (left) hit a golf ball 2,400 feet.

earth is –129 degrees F at the Russian Base Vostok, Antarctica, in 1983. Foods are "flash frozen" in minutes at –112 degrees F. Dry ice, or frozen carbon dioxide, is in its steady state at –99 degrees Fahrenheit. The Moon's nighttime temperature is almost cold enough to liquefy air on earth, which occurs at –269 degrees F. So, which do you prefer — hot or cold?

How about some of the widests, deepests and highests? The largest feature on the moon is the South Pole Aitken Basin, which is 1,400 miles in diameter and an average 39,000 feet deep. The distance from Kansas City to Los Angeles is close to the diameter of the basin. Driving at 70 miles per hour it would take 20 hours at a cost of about $83 in fuel (using the same Ford fuel-efficient car). If you dropped a rock from the rim, it would take approximately 20 minutes to reach the bottom. The highest mountain on the moon is Beta in the Leibnitz Range at 36,000 feet or 6.8 miles. Stand at the top of it and drop a rock and it would take about 18 minutes to hit bottom. The largest crater that can be seen on the Moon is Bailly. It covers an area of about 26,000 square miles — about the size of West Virginia and over three time the size of Wales.

Does the moon have an atmosphere? Contrary to popular belief, the Moon does have an atmosphere. It is very thin. If you took all of the molecules in one cubic centimeter of atmosphere from the Moon and lined them up, they would fit inside the period of this sentence. If you took a cubic centimeter of atmosphere from the earth at sea level and lined up all of the molecules, it would go from the Earth to the Moon and back again two and a half times.

Okay for now all you weight watchers: the Moon's gravity is one-sixth that of Earth. That means you would weigh .17 percent what you do now. No examples — you figure your own weightloss, then just hop the next flight and forget about the diet fads! The minimal gravity has other effects besides making you weigh less. Astronaut Alan Sheppard hit a golf ball 2,400 feet, nearly one-half mile (was that a par 12?)! Think about playing basketball on the moon: the hoop would have to be placed 60 feet above the surface. What would baseball be like on the moon? A ball hit 385 feet on Earth usually stays in the air for about five seconds. That same ball hit on the moon would go nearly 2,300 feet and stay in the air for more than 30 seconds. Some batters would be able to hit the ball, circle the bases, then watch from the dugout as the ball leaves the park!

Yes, the Moon is truly an amazing place and hopefully one day we'll go back and visit. Until then, we can point our telescopes towards it and enjoy what it has to offer. Over the next several issues, I will discuss briefly some of the lesser-known lunar features that are observed and how they are placed in lunar history. Until then, enjoy our nearest neighbor!

QUICK MOON FACTS

■ Light from the Moon takes about one and a half seconds to reach Earth.

■ Baskin-Robbins introduced the flavor "Lunar Cheesecake" to commemorate America's landing on the moon on July 20, 1969.

■ The volume of the Earth's moon is the same as the volume of the Pacific Ocean.

■ If you added up the mass of all of the thousands of known asteroids in the asteroid belt, the total would be less than ten percent of the mass of the Earth's Moon.

■ There are over 500,000 craters on the moon that can be seen from the planet Earth.

■ The Hubble Space Telescope can resolve features on the lunar surface down to 85 meters (280 feet).

■ The gold-plated 33-rpm record "Camelot" was left behind on the moon by the Apollo astronauts.

■ The Earth rotates about 1,000 miles per hour, the moon about 10 miles per hour.

■ While the full Moon seems very bright, it would take 450,000 of them to equal the magnitude of the Sun.

■ There is not a McDonald's on the moon — yet.

Buzz Aldrin in a McDonald's commercial.

Walt Robinson has been a member of the Astronomical Society of Kansas City since 1987. His present duties include Webmaster for the society's Web site. He has presented many programs at the public nights at Powell Observatory and in Bonner Springs, Kan. where he lives.

Walt also runs the "Robinson Lunar Observatory" to spur interest in the moon among amateur astronomers. His recent "lunar light ray" program brought many amateurs together from across the United States and abroad to study and observe these events. An article written in the Astronomical League's Reflector *explained the program, and as a result recruited many more interested amateurs into studying the moon.*