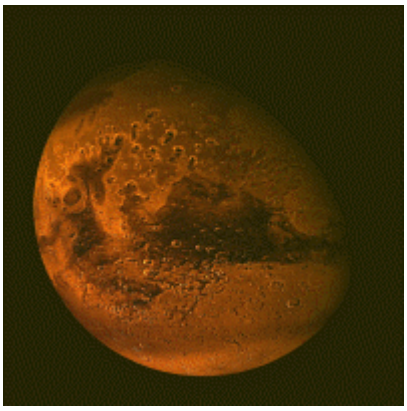
June 9, 2003 THE WEEKLY REPORT Vol. 2 Iss. 23

Red Planet

-- What will happen if one of the Supreme Court Justices decide to step down this summer? --

BACKGROUND:

By 1960, human space engineers were ready to build and send interplanetary science probes away from Earth toward the Moon and planets. Since then, some two dozen unmanned Mars explorers have been fired into interplanetary space from the U.S. and the USSR to look at the Red Planet and its moons Phobos and Deimos.



1960s: The USSR's Mars 1, launched in November 1962, was the first attempt to probe Mars. Unfortunately, contact was lost with the spacecraft only 60 million miles along its route to the Red Planet. America's Mariner 4 launched in November 1964 was the first successful probe to reach Mars, sending back 22 photos as it flew by in July 1965. The first close-up pictures ever of another world showed a barren wilderness. Meanwhile, a Soviet probe intended for Mars missed the 1965 window of opportunity for a launch, but was fired off anyway. It successfully faxed back to Earth photographs of the far side of the Moon as it flew away into an orbit around the Sun. In 1969, the U.S. probes Mariner 6 and 7 successfully completed the first dual-spacecraft mission to the Red Planet, sending back more than 100 pictures and data on the atmosphere and surface.

1970s: In 1971, the U.S. suffered a loss when the probe Mariner 8 splashed into the ocean off Puerto Rico during launch. But then the first man-made satellite to orbit a planet other than Earth was America's Mariner 9 which brought us the first close-ups of the Martian moons Phobos and Deimos. Launched toward Mars in May 1971, Mariner 9 arrived in a 12-hour orbit around the Red Planet in that November. Mariner 9 had two TV cameras which sent back 7,329 photos including close-ups of giant volcanoes, canyons and ancient riverbeds.

The Soviet Union in 1971 achieved success with Mars 2 and Mars 3, which transmitted data on the harsh atmosphere. They dropped descent modules decorated with flags of the Soviet Union. The lander from Mars 2 crashed on the surface and the Mars 3 lander stopped communicating. The USSR tried to send four probes to Mars in 1973-74. Mars 4 and Mars 5 were intended for orbit around the planet. Mars 5 succeeded. Mars 6 was to land on Mars, but crashed. Mars 7 missed its target.

Viking 1 and Viking 2 carried the American flag across millions of miles of interplanetary space to photograph Mars, Phobos and Deimos, and land on the Red Planet in 1976. The Vikings have been the most scientifically-profitable Martian operations to date.

- Viking 1 launched September 9, 1975, arrived at Mars June 19, 1976, and landed.
- Viking 2 launched August 20, 1975, arrived at Mars August 7, 1976, and landed.

Viking bio-tests turned up unusual chemical activity in the soil, but any finding of evidence of life remains controversial even today. At the time, the planet was said to be sterile.

1980s: In 1988, the Soviet Union sent two probes to Mars. They were designed to explore the Sun while enroute, and then Mars and the Martian moon Phobos — the spacecraft were named

IN THIS ISSUE:

Phobos 1 and Phobos 2. A software glitch led to loss of contact with Phobos 1. Phobos 2 carried the USSR flag 111 million miles to Mars orbit on January 29, 1989. It detected water vapor in the Martian atmosphere and sent back some photos. However, a computer problem ended its mission before the spacecraft could send a robot probe to land on the moon Phobos.

1990s: In 1993, after a Mars-launch hiatus of 18 years, the U.S. sent a new spacecraft -- Mars Observer -- to look in on the Red Planet. Unfortunately, its signal was lost three days before it was to fly into orbit around Mars. In 1996, America launched Mars Global Surveyor to map the Red Planet. MGS sent home more than 120,000 pictures along with data raising a possibility of water beneath the martian surface.

The next year, America's Pathfinder landed on Mars. Millions of people on Earth watched as the lander sent out a rover named Sojourner for a close-up look at rocks and the terrain. Pathfinder sent back more than 20,000 images that made it seem Mars once might have been warm and wet.

The U.S. suffered two setbacks from 1999 launches. NASA lost one 1998 mission because the agency failed to take into account that some calibrations had been made in metric, some in English standard. Its Climate Orbiter was lost as it arrived at Mars. Then the signal from Polar Lander was lost when it was supposed to touch down near the south pole of the Red Planet.

2000s: In 2001, the U.S. probe Mars Odyssey was sent to examine the composition of the Martian surface, to look for water and ice, and to study the radiation environment. In the process, it created the first large-scale geological map of the planet.

The European Space Agency launched its probe Mars Express on June 2, 2003, to fly into orbit around Mars in January 2004, and drop a lander named Beagle 2 to the surface. Also in summer 2003, the U.S. plans to send two identical six-wheeled Mars Exploration Rovers to land on the Martian surface. Meanwhile, the first Japanese Mars orbiter, Planet B or Nozomi, is on a 4.5 year voyage from Earth to Mars. Mars Express, Nozomi, and the Mars Exploration Rovers should arrive in January 2004.

Good launch windows for blasting scientific probes from Earth toward Mars are determined by the Red Planet's orbit in relation to Earth's orbit around the Sun. The best windows open once every 26 months. NASA, the U.S. space agency, is planning to fling robot spacecraft toward Mars during every available window into the foreseeable future.

STORY:

Storms and high wind on Sunday forced NASA to delay launching a rocket carrying the first of a pair of rovers destined for Mars on a mission to search for evidence of water on Earth's neighbor. The launch aboard a Boeing Delta II from the Cape Canaveral Air Force Station was rescheduled for Monday afternoon, but there was only a 40 percent chance that storms would clear by then. The weather was expected to improve by Tuesday.

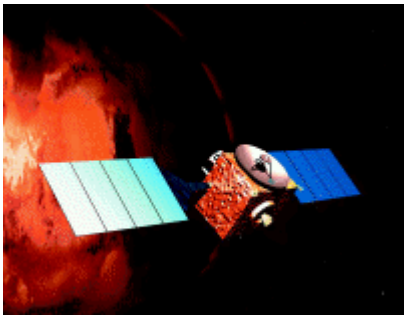
The second rover is scheduled for launch later this month, and both vehicles are to arrive at Mars in January.

Previous missions have shown Mars had water in the past, but scientists want to find out how long the water was there and in what amounts. Scientists believe the water may show that Mars once was able to support life.

The rovers' landing sites, on opposite sides of the planet, were chosen for their likelihood of holding evidence of water. Studying the minerals in rocks can tell scientists how the rocks were formed, whether they were ever submerged in water, and whether hot water ever ran over them.

The first rover is headed for the Gusev Crater, a large impact crater just south of the Martian equator that might once have held a lake. A valley that cuts through the crater's rim could have been caused by water flowing out. The rover could find sediment, or rocks that appear to be

eroded by water or moved from one place to another by water.



The rovers will land nestled inside a configuration of bouncing balloons first used in the Mars Pathfinder mission, which caused a media sensation with television images of the rocky landscape. Since then, a pair of high-profile failures forced NASA to redesign its Mars program top to bottom, and the agency now counts on the rover twins to reestablish its credibility.

Moving from place to place, the rovers will perform on-site geological investigations. Each rover is sort of the mechanical equivalent of a geologist walking the surface of Mars. The mast-mounted cameras are mounted 1.5 meters(5 feet) high and will provide 360-degree, stereoscopic, humanlike views of the terrain. The robotic arm will be capable of movement in much the same way as a human arm with an elbow and wrist, and will place instruments directly up against rock and soil targets of interest. In the mechanical "fist" of the arm is a microscopic camera that will serve the same purpose as a geologist's handheld magnifying lens. The Rock Abrasion Tool serves the purpose of a geologist's rock hammer to expose the insides of rocks.

The rovers are expected to travel up to 132 feet each Martian day, which is 24 hours and 39 1/2 minutes long. The rovers' missions are expected to last three months but could run longer. They eventually will shut down as dust builds up on their solar panels. Only 12 out of 30 previous attempts have reached Mars, and only three out of nine attempts have succeeded in landing on the planet. They are costing $800 million.

They join Japanese and European satellites on their way to the red planet and two NASA satellites already orbiting Mars. All the activity takes advantage of a rare proximity between the planets that has cut the normal travel time from the usual nine to 10 months to just seven months for missions launched this year.

The Mars Express mission lifted off from Baïkonur in Kazakhstan on June 2. An interim orbit around the Earth was reached following a first firing of the Fregat upper stage. One hour thirty-two minutes after blastoff, the spacecraft was injected into its interplanetary orbit.

The spacecraft has completed the first of several trajectory correction maneuvers. Mars Express has also successfully switched from the low-gain antenna to the high-gain antenna for communication with mission control at the European Space Operations Center (ESOC) in Germany. The high gain antenna is a circular dish attached to one face of the spacecraft body and is nearly 6-feet (1.8 meters) in diameter. It is used for receiving and transmitting radio signals when the spacecraft is a long way from Earth.

More hurdles are ahead, note ESA officials. But Mars Express/Beagle 2 appears to be in good shape at present for the long haul to Mars.

http://mars.jpl.nasa.gov/mer/

SIGNIFICANCE:

A new era of sophisticated robot interplanetary probes that may be launched from Earth by the United States, Europe, Japan, Russia and China in the 21st century will continue to teach us many new things about Mars and help us solve some old mysteries of the Solar System.

The biggest Mars mystery is whether life ever did, or still does, exist on the Red Planet. The discovery on Earth of meteorites from Mars which seem to contain evidence of primitive life out there has raised many new questions about the origin of life in the Solar System.

- Could Mars have had simple forms of life before organic life appeared on Earth?
- Could a chunk of Mars have landed on Earth and seeded our planet? That's a far-out suggestion, but, if true, we would be the result three or four billion years later.

- Are we Martians? Some scientists find it a fascinating speculation that perhaps the home planet of the human race might actually be Mars. Again far-out, but interesting none-the-less.
- Researchers say Mars once was more like Earth — warmer and wetter with a denser atmosphere. What happened to its climate and geology? Did the planet foster life? Could hardy organisms be hanging on in crevices or soil? Do the climate changes raise a yellow flag for life on Earth?
- With one of Earth's nearest neighbors showing evidence of life, could life be far more prevalent in the galaxy than people have imagined?

Answering such questions and unraveling mysteries would lead to an age of enlightenment on Earth. The answers undoubtedly would bring up even more profound questions.

A human flight to the Red Planet may be possible in the period 2018-2025. NASA is planning for human crews to explore Mars sometime around then. It takes time to design and carry out missions to planets. NASA says six years are required between a decision to send humans to Mars and blastoff. Thus, the data on Mars climate and geology collected by Pathfinder and its several followers will be essential for planning ahead.

Humans fly now only in the so-called "low-Earth orbit" around 200 miles above Earth. The only time human beings have flown farther from Earth was briefly during the Apollo Project era of Moon flights in the late 1960s and early 1970s. People won't fly farther again until a manned mission to Mars in the period 2018-2025. The actual blast-off date depends on what the coming visits by robot Mars probes find at the Red Planet. When a probe returns to Earth from Mars, after a three year trip, with a pound of Martian rock and soil, we will learn whether Mars has mysteries that require humans to go there to solve.

Update:

Halliburton's Gov't Contracts Total $600M

(AP) - Vice President Dick Cheney's former company already has garnered more than $600 million in military work related to the wars in Afghanistan and Iraq, and potentially could earn billions more without having to compete with other companies. As the Army's sole provider of troop support services, Halliburton's Kellogg Brown & Root subsidiary has received work orders totaling $529.4 million related to the two wars under a 10-year contract that has no spending ceiling.

Rather than put the Iraq work up for bidding, the government has used the 2001 Halliburton contract to place the work orders in Iraq, prompting criticism from some Democrats that the company is getting special treatment.

Halliburton, a Houston-based oilfield-services and construction company, disputes those characterizations, noting it had to compete to win the original contract and that each of its work orders is covered by strict guidelines and costs controls. Cheney headed Halliburton from 1995 until George W. Bush picked him as his running mate in July 2000.

The initial logistics contract award carried no value. The Army negotiates each task order with the company and then verifies the costs as they are billed. There is no ceiling on spending, because the contract is designed to provide rapid troop support wherever and whenever U.S. forces move into action overseas.

Since March 2002, the Army has issued 24 task orders totaling $425.5 million under the contract for work related to Operation Iraqi Freedom. Eleven more work orders totaling $103.9 million have been issued under the same contract for work related to the war in Afghanistan.

THIS WEEK IN HISTORY:

June 9, 1973

SECRETARIAT WINS TRIPLE CROWN

With a spectacular victory at the Belmont Stakes, Secretariat becomes the first horse since Citation in 1948 to win America's coveted Triple Crown--the Kentucky Derby, the Preakness, and the Belmont Stakes. In one of the finest performances in racing history, Secretariat, ridden by Ron Turcotte, completed the 1.5-mile race in 2 minutes and 24s, a dirt-track record for that distance.

With easy victories in his first two starts of 1973, Secretariat seemed on his way to the Triple Crown. Just two weeks before the Kentucky Derby, however, he stumbled at the Wood Memorial Stakes at Aqueduct, coming in third behind Angle Light and Sham. On May 5, he met Sham and Angle Light again at the Churchill Downs track in Louisville for the Kentucky Derby. Secretariat, a 3-to-2 favorite, broke from near the back of the pack to win the 2 1/4-mile race in a record 1 minute and 59 seconds. He was the first to run the Derby in less than two minutes and his record still stands. Two weeks later, at Pimlico Race Course in Baltimore, Maryland, Secretariat won the second event of the Triple Crown: the Preakness Stakes. The official clock malfunctioned, but hand-recorded timers had him running the 1 1/16-mile race in record time.

On June 9, 1973, almost 100,000 people came to Belmont Park near New York City to see if "Big Red" would become the first horse in 25 years to win the Triple Crown. Secretariat gave the finest performance of his career in the Belmont Stakes, completing the 1.5-mile race in a record 2 minutes and 24 seconds, knocking nearly three seconds off the track record set by Gallant Man in 1957. He also won by a record 31 lengths. Ron Turcotte, who jockeyed Secretariat in all but three of his races, claimed that at Belmont he lost control of Secretariat and that the horse sprinted into history on his own accord.

WHO YOU NEED TO KNOW:

Secretariat

Secretariat was born at Meadow Stables in Doswell, Virginia, on March 30, 1970. He was sired by Bold Ruler, the 1957 Preakness winner, and foaled by Somethingroyal, which came from a Thoroughbred line known for its stamina. An attractive chestnut colt, he grew to over 16 hands high and was at two years the size of a three-year-old. He ran his first race as a two-year-old on July 4, 1972, a 5 1/2-furlong race at Aqueduct in New York City. He came from behind to finish fourth; it was the only time in his career that he finished a race and did not place. Eleven days later, he won a six-furlong race at Saratoga in Saratoga Springs, New York, and soon after, another race. His trainer, Lucien Laurin, moved him up to class in August, entering him in the Sanford Stakes at Saratoga, which he won by three lengths. By the end of 1972, he had won seven of nine races.

Secretariat would race six more times after the Triple Crown, winning four and finishing second twice. In November 1973, the "horse of the century" was sold to a syndicate of investors for more than $6 million and put to stud at Claiborne Farm in Paris, Kentucky appearing simultaneously on the covers of *Time, Newsweek,* and *Sports Illustrated*. Thousands of people visited him each year. In his 16 years, he sired 663 foals. Among his notable offspring is the 1988 Preakness and Belmont winner, Risen Star. Secretariat was euthanized in 1989 after falling ill. An autopsy showed that his heart was two and a half times larger than that of the average horse, which may have contributed to his extraordinary racing abilities. In 1999, ESPN ranked Secretariat No. 35 in its list of the Top 50 North American athletes of the 20th century, the only non-human on the list. A bronze statue of Secretariat stands in the center of the paddock at Belmont Park in Elmont, New York.

www.thehistorychannel.com

SPORTS:

HorseRacing

All modern Thoroughbreds have as common ancestors one or more of three stallions, the Byerly Turk, the Darley Arabian, and the Godolphin Barb, which were imported into Great Britain from the Middle East and North Africa between 1689 and 1724. Mated with strong English mares, they produced offspring with both speed and endurance. Thoroughbreds that compete in organized racing are registered in the official national *stud books,* or pedigree registers, of their country of birth. The British stud book was begun in 1791. Stud records in the US date from 1873.

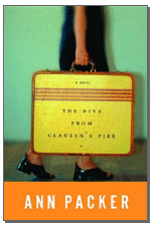
When horses destined for racing careers are two years old, they begin training that includes accepting a rider's weight and commands. Although many two-year-olds race, Thoroughbreds are usually in their prime between the ages of three and five, and horses up to ten years of age have competed successfully. Some races are for horses of one sex only, but most races are open to entries of either sex. A female horse is known as a filly until its fifth birthday and as a mare thereafter. A castrated male horse of any age is called a gelding. A male horse that has not been castrated is known as a colt until its fifth birthday, when it is thereafter referred to simply as a horse or a stallion, regardless of its age.

Champion stallions are of great value to their owners, not only because of their race winnings but also because other horse owners and breeders pay substantial sums (called stud fees) for the privilege of mating their own brood mares with these stallions.

The purchase price of a Thoroughbred suitable for racing or breeding purposes ranges from several thousand to several million dollars. The earning power, however, of successful Thoroughbreds during and after their active racing careers is high. In 1996 a horse named Cigar broke Alysheba's career-earnings record of almost $6.7 million and retired at the end of that year with just under $10 million in total winnings. Another leading money earner, John Henry, a gelding, raced through 1984 and retired at the age of nine with earnings of $6,597,947.

In the 1960s the buying of Thoroughbreds through syndicates became a widespread practice. Each member of such a syndicate buys an interest in a horse, usually between a one-quarter and one-tenth share but sometimes less. One of the highest prices paid for a Thoroughbred was about $60 million for 2000 Kentucky Derby winner Fusaichi Pegasus, purchased by a syndicate of breeders at the end of his racing career.

ENTERTAINMENT:



The Dive From Clausen's Pier

by Ann Packer

A young woman must choose between her suddenly quadriplegic fiancé and a brand new life in the big city.

Carrie Bell's relationship is falling apart quietly when her fiancé, Mike, in an effort to kick off a day at the park with friends, dives headfirst into shallow water. In most disintegrating romances that have lingered for many years, it usually takes something mundane -- another lover, a new job in a distant city -- to bring on the end. In Ann Packer's first novel, "The Dive," Mike's tragic accident, one that renders him a quadriplegic, brings on a much more uncertain, and painful, dilemma. Carrie must choose between her loyalty to Mike and her own freedom.

I wasn't sure Packer would be able to draw out an interesting story from this one decision, especially since Carrie makes her choice quite early in the book. But while "The Dive From Clausen's Pier" is sometimes slow-moving, Packer untangles compelling ideas about devotion and sacrifice from her protagonist's quandary. The thoughtful, good-hearted Carrie, probably for the first time in her life, decides to put her own best interests first.

FEATURE:

Civil War:

Part I

As the Southern states seceded, they seized and occupied most of the federal forts within their borders or off their shores. Only four remained in the hands of the Union. Fort Sumter stood guard in the mouth of the harbor of Charleston, South Carolina. The other three forts were in Florida: Fort Jefferson in the Dry Tortugas, Fort Pickens in Pensacola Bay, and Fort Taylor at Key West. Of the four, Sumter was the most important.

FORT SUMTER: In January 1861 President James Buchanan tried to send troops and supplies to Major Robert Anderson, commander of the garrison at Fort Sumter. *Star of the West,* the ship Buchanan sent, was an unarmed merchant vessel. When the shore batteries at Charleston Harbor fired on the ship, it sailed away. Lincoln, during his first full day in office, learned that Anderson had only enough provisions for a month and could obtain no supplies from the mainland. Sumter had become a symbol of the Union. To give it up, Lincoln felt, was to violate his sworn oath to protect the properties of the United States. On the other hand, there was grave doubt that a relief expedition could succeed in supplying the fort. If it failed, it might touch off war.

Early in April, President Lincoln came to a decision. He would send a relief expedition to Sumter, but the ships would land provisions only if they were not attacked. He notified the governor of S. Carolina of the action he was taking. Three days later the relief ships sailed from New York.

SURRENDER OF FORT SUMTER: On April 11, 1861, General P. G. T. Beauregard, commanding the Confederate troops in Charleston, served Anderson with a demand that he surrender the fort. Anderson refused, but he stated that lack of supplies would compel him to give up the fort by April 15. His reply was so hedged with qualifications that Beauregard considered it unsatisfactory, and, on April 12, he ordered his batteries to open fire on the fort.

For a day and a half, Anderson returned the fire. The relief expedition, weakened by storms and without the tugs it needed, appeared at the bar of the harbor but made no effort to land men. On the second day, with Sumter badly damaged by fire, Anderson surrendered the fort.

NORTH AND SOUTH MOBILIZE: The North responded to the attack on Fort Sumter with shock and anger. Everywhere people were determined to support the government in whatever measures it might take. On April 15, Lincoln issued a proclamation that called up a total of 75,000 militia from the states. At the same time, calls for troops were sent to the governors of all states that had remained in the Union. On April 19 a second proclamation announced that Southern ports would be blockaded. A third proclamation, dated May 3, called for 42,000 three-year volunteers for the regular army and for 18,000 volunteers to serve one to three years in the navy.

The South responded with equal determination. Virginia and the rest of the upper South seceded. The Congress of the Confederacy authorized President Davis to wage the war. The border slave states of Kentucky, Missouri, Maryland, and Delaware never seceded. However, many thousands of their men volunteered for service in the Confederate armies.

Both the North and South raised troops as quickly as possible and struggled with the problem of equipping and training them. The states recruited volunteers and organized them into regiments. Officers were elected by the men and commissioned by the governors. In the beginning the length of service was usually short, but as soon as it became clear that the war would not end with one decisive battle, three-year-enlistments became the rule, although there were many exceptions.

In the North the first troops ready for service were sent to Washington, D.C., and to points along the Ohio River. Confederate troops were concentrated in Tennessee and in Virginia, where they could threaten the federal capital.

Quote of the Week:
Zeal without knowledge is a runaway horse.
-Proverb

Word of the Week:
Scaup (skap) *n*. A bed of shellfish; a species of duck that feeds on mollusks.

Fact of the Week:
It costs 3 cents to make a dollar bill—and 7.8 cents to make a half-dollar coin.

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