

radiometer or sensitive heat measuring instrument will be used on the 40-inch reflecting telescope to measure the heat energy emitted by the surface of the planet.

"While it is true that Mars will shine forth from our southern sky this summer the biggest and brightest he ever appears to dwellers on the earth, yet I fear most persons greatly over estimate the scientific value of this once-in-two-hundred year view of him. Since we cannot see forthright in the telescope the exact nature of what exists on any of our planets, but arrive at these facts by more or less indirect means, the value of observations is not entirely dependent upon or commensurate with nearness of view. For this reason, observations made at the exact time of nearest approach of the planet do not have an important advantage over those made on many nights before or after that date. Because we can not watch the progressive development of the markings throughout any single Martian year, our knowledge of him must be gained chiefly by correlating and piecing in the observations of different seasons of different years. For these reasons a few observations of the planet when nearest the earth are not likely to add much if anything to the exact knowledge of it, unless some highly informative phenomenon should obligingly chance to appear during that brief study."

SATELLITES OF MARS TO BE STUDIED BY NAVAL OBSERVATORY

Washington, - The two satellites or moons of Mars will occupy the attention of astronomers of the U. S. Naval Observatory, at the time of the favorable opposition of Mars in August, Capt. Edwin T. Pollock, U.S.N., superintendent of the observatory, has announced.

Phobos and Deimos, the two satellites, were discovered at this observatory by Dr. Asaph Hall, sr., in 1877.

"They are small and faint objects, the inner, Phobos, perhaps 36 miles, and the outer, Deimos, perhaps 10 miles in diameter," Capt. Pollock explained. "When they are at elongation, that is farthest away, apparently, from the planet, these moons can be seen with moderate sized telescopes by putting Mars out of the field. The Greenwich times of elongation can be taken from the American Ephemeris.

"The observations of the moons furnish among other data the mass of the planet. The inner satellite, Phobos, is only 3680 miles from the surface of Mars. It can not be seen from the regions about the planet's poles.

"From the equator of Mars Phobos, in the zenith, might appear as large as the Earth's moon.

"On account of its short period of revolution Phobos rises in the west, passes eastward across the sky, and sets in the east, making more than 3 revolutions while Mars is turning once on its axis. The short period of Phobos raises curious questions as to the theory of the development of the solar system.

"The period of Phobos from meridian to meridian is 11 hours, that of the outer moon, 14,000 miles from Mars, Deimos, is 131 hours. This is more than four of the months of Deimos, which therefore goes through all its changes of phase four time during this interval."