

## STAR GAZERS

SG 1605 – 5 MINUTE (FEBRUARY 1 – 7, 2016)

“JUPITER AND THE HIGH FLYIN’ LION!”

DEAN: WELCOME TO STAR GAZERS. I'M DEAN REGAS, ASTRONOMER FROM THE CINCINNATI OBSERVATORY.

JAMES: AND I'M JAMES ALBURY, DIRECTOR OF THE KIKA SILVA PLA PLANETARIUM IN GAINESVILLE FLORIDA. NOW THAT FEBRUARY IS HERE, WE CAN BEGIN TO SAY FAIRWELL TO OUR WINTER CONSTELLATIONS AND PREPARE FOR THE COMING OF SPRING.

DEAN: THAT’S RIGHT, JAMES! AND WE’RE GOING TO SEE THE KING OF THE PLANETS GET BIGGER AND BRIGHTER AS THE MONTH PROGRESSES!

JAMES: WHAT ARE WE TALKING ABOUT? LET’S SHOW YOU!

(STOP – JAMES AND DEAN IN SPACE)

JAMES: NOW MOST OF YOU KNOW THAT ORION THE HUNTER IS WINTER'S MOST FAMOUS STAR PATTERN. IF YOU GO OUTSIDE IN EARLY EVENING IN DECEMBER YOU'LL SEE ORION CLIMBING UP THE EASTERN SKIES AS A CELESTIAL ANNOUNCEMENT OF THE IMMINENT ARRIVAL OF WINTER.

DEAN: AND IN THE DEPTHS OF WINTER, IN JANUARY AND FEBRUARY, ORION REACHES HIS HIGHEST POINT IN THE HEAVENS IN EARLY EVENING, ALMOST BRAGGING THAT HE IS MASTER OF THE SEASON.

JAMES: BUT THEN AS MARCH BEGINS, THINGS START TO CHANGE. BECAUSE ALL THROUGHOUT MARCH ORION SLOWLY RELINQUISHES HIS HIGH FLYING POSITION IN EARLY EVENING. BY THE BEGINNING OF APRIL, ORION IS TIPPED OVER ON HIS

SIDE IN THE SOUTHWEST, ALMOST HANGING ON TO THE SKY FOR DEAR LIFE, AS IF HE KNOWS THAT IN JUST A FEW WEEKS, HE WILL BE GONE FROM EVENING SKIES UNTIL NEXT WINTER.

DEAN: AND IT'S THIS POSITION OF ORION IN THE SOUTHWESTERN HEAVENS IN EARLY EVENING THAT ALWAYS TELLS US THAT WINTER IS COMING TO AN END.

(STOP)

DEAN: IN FACT IF YOU GO OUTSIDE AT 9:30 PM ANY NIGHT THIS WEEK, YOU'LL SEE LEO RISING MAJESTICALLY IN THE EAST, JUST AS THE ANCIENT EGYPTIANS DEPICTED HIM IN A REGAL SPHINX LIKE POSITION; VERY SELF ASSURED THAT WINTER AND ORION WILL SOON BE HISTORY.

JAMES: HIS HEAD AND FOREQUARTERS ARE INDICATED BY A BACKWARD QUESTION MARK OF STARS WITH THE BRIGHT BLUE WHITE STAR REGULUS MARKING HIS HEART. HIS REAR IS MARKED BY A TRIANGLE OF STARS WITH LEO'S SECOND BRIGHTEST STAR DENEbola MARKING HIS TAIL.

(STOP) SKY BOARDS BOTH

DEAN: LEO'S BRIGHTEST STAR REGULUS MEANS "THE LITTLE KING". BUT IT'S FAR FROM BEING LITTLE. RECENT MEASUREMENTS INDICATE THAT IT'S MORE THAN ONE AND A HALF TIMES THE DIAMETER OF OUR ALMOST MILLION MILE WIDE SUN. HOWEVER, BECAUSE IT'S A MUCH HOTTER STAR, IT'S 140 TIMES BRIGHTER THAN OUR SUN. AND BECAUSE IT'S A WHOPPING 80 LIGHT YEARS AWAY, THIS MEANS THAT WHEN WE LOOK UP AT REGULUS, WE SEE THE LIGHT THAT LEFT IT 80 YEARS AGO.

JAMES: ON THE OTHER HAND, DENEbola IS HALF AS FAR AWAY FROM US AS REGULUS, ONLY 40 LIGHT YEARS AWAY, AND EVEN THOUGH IT'S MUCH BIGGER

THAN REGULUS, IT APPEARS DIMMER THAN REGULUS. WHY? BECAUSE IT'S MUCH COOLER THAN REGULUS, AND THEREFORE ONLY 20 TIMES BRIGHTER THAN OUR SUN. EVEN SO, IF WE REPLACED OUR SUN WITH EITHER DENEbola OR REGULUS, WE'D ALL BE CRISPY CRITTERS.

DEAN: NOW, BOTH REGULUS AND DENEbola ARE INTERESTING, BUT THERE'S ANOTHER BRIGHT OBJECT IN THIS PART OF THE SKY THAT WE WANT TO SHOW YOU, AND THAT'S THE PLANET JUPITER.

(STOP)

JAMES: OK, WE'RE FACING EAST AND WE HAVE OUR SKY SET FOR 9:30 PM YOUR LOCAL TIME, ANY DAY THIS WEEK. JUPITER IS VISIBLE NEAR THE HORIZON JUST TO THE RIGHT OF THE TRIANGULAR PATTERN OF STARS MARKING LEO'S TAIL.

DEAN: THE PLANET JUPITER HAS BEEN OBSERVED IN THE SKY SINCE ANTIQUITY. THE ANCIENT ROMANS NAMED IT AFTER THE KING OF THEIR GODS, WHOM THE GREEKS REFERED TO AS ZEUS.

JAMES: BABYLONIAN ASTRONOMERS HAVE RECORDS OF JUPITER DATING BACK TO THE 7TH CENTURY B.C. IN HIS BOOK THE ALMAGEST, GREEK ASTRONOMER CLAUDIUS PTOLEMY USED JUPITER'S MOTION WITH RESPECT TO THE EARTH TO REFINE HIS EARTH-CENTERED MODEL OF THE SOLAR SYSTEM.

DEAN: BY DOING THIS, PTOLEMY SHOWED THAT JUPITER TOOK ALMOST 12 YEARS TO MAKE A COMPLETE CIRCUIT OF THE SKY. TODAY, WE KNOW THIS AS THE AMOUNT OF TIME IT TAKES JUPITER TO ORBIT THE SUN.

JAMES: IN 1610, ITALIAN ASTRONOMER GALILEO GALILEI STUDIED JUPITER USING A TELESCOPE AND IS CREDITED WITH DISCOVERING THE FOUR LARGEST MOONS OF JUPITER; IO, EUROPA, GANYMEDE AND CALLISTO. THE MOTIONS OF THESE

MOONS AROUND JUPITER PROVIDED GALILEO WITH AN EXAMPLE SUPPORTING NICHOLAS COPERNICUS' VIEW OF A SUN-CENTERED SOLAR SYSTEM.

DEAN: ASTRONOMERS GIOVANNI CASSINI AND ROBERT HOOKE BOTH NOTICED A LARGE RED SPOT ON JUPITER DURING THEIR TELESCOPIC OBSERVATIONS IN THE 1660'S. THIS SPOT, APPROPRIATELY CALLED THE GREAT RED SPOT, IT IS SO LARGE THAT YOU COULD FIT THE PLANETS MERCURY, VENUS, EARTH AND MARS INSIDE IT.

JAMES: SO GET OUTSIDE THIS WEEK AND WELCOME LEO THE LION, AND THE GIANT PLANET JUPITER!

BOTH: KEEP LOOKING UP!