



short distance away from Deneb, in the direction toward Pegasus, is a star known as 61 Cygni. It is just about bright enough to be seen with the naked eye on a dark night. This was the first star to have its distance measured, in 1838, by F. W. Bessel, who found that it is about 11 light years away. That is, its light, traveling eleven million miles a minute, takes almost eleven years to reach us. It is thus one of the closest of all stars. It also is a double star. That is, like Sirius, there are two bodies revolving around their center of gravity, but in this case they are nearly of the same brightness.

Found By Mathematics

In studying very accurate photographs of these two stars, Dr. K. Aa. Strand, a Danish astronomer working at the Sproul Observatory, Swarthmore, Pa., found that the movement of one of them was irregular, and decided that there must be a third body revolving around it. By a mathematical analysis, he calculated that it was only about a sixtieth of the sun's mass, and that it goes around its parent star in about 4.9 years.

The least massive star known up to this time was only about a seventh of the sun's, so that the new body is far below a star in mass, and could hardly be classed as stellar. It is only 16 times as massive as the planet Jupiter so Dr. Strand decided that it is a planet rather than a star. This is the first planet, if such it be, to be discovered outside our solar system. Since then other stars have been found to have similar small companions, so it looks as if our planetary family may not be unique, as some have imagined.

In the course of his work, Dr. Strand made some calculations about the two main stars of the 61 Cygni system. He found that their combined mass is

slightly more than the sun's; that they make a complete revolution in 720 years and that they are of the order of 7,000,000,000 miles apart.

Although the presence of the 61 Cygni planet is known as definitely as if it were visible, there is little hope at present for seeing it through telescopes, and even less for finding out anything about its physical nature, much less whether it has any inhabitants. But at least it is a step toward making us less lonely in the universe, for as we look at the constellation of Cygnus we can realize that there at least is another body which is something like the planets around the sun, one of which is our home.

Celestial Time Table for October

Oct.	EWT		
1	1:00 p.m.	Moon nearest,	222,000 miles
2	12:22 a.m.	Full moon	
8	11:42 a.m.	Moon passes Saturn	
	9:12 p.m.	Moon in last quarter	
10	12:49 a.m.	Algol at minimum	
12	9:38 p.m.	Algol at minimum	
13	8:54 p.m.	Moon passes Jupiter	
14	10:00 a.m.	Moon farthest,	252,400 miles
15	6:27 p.m.	Algol at minimum	
17	1:35 a.m.	New moon	
19	3:40 p.m.	Moon passes Venus	
22		Meteors of Orionid shower visible	
24	6:48 p.m.	Moon in first quarter	
29	10:00 p.m.	Moon nearest,	223,800 miles
30	2:31 a.m.	Algol at minimum	
31	9:35 a.m.	Full moon	

Subtract one hour for CWT, two hours for MWT, and three for PWT.

Science News Letter, September 30, 1944

ENGINEERING

Engine Testing Unit Studies 100-Octane Gas

➤ A ROARING airplane engine which could pull a plane through the air as fast as 400 miles an hour, but which will never leave the ground is the center of a new aviation fuels testing unit revealed by the Standard Oil Company (New

Jersey). It is expected that with the new \$500,000 unit, petroleum technologists will be able to speed up the improvement of the 100-octane gasoline now used by the Allied air forces and possibly increase the production of this super-fuel.

Engines exceeding 2,500 horsepower can be operated on the new test stand, the first of its kind built.

The petroleum technologists will study, primarily, the problem of aviation engine knock, the same kind of knock that you hear in the engine of your automobile if the octane rating of the gasoline you are using is too low. In your car, the knock only causes annoyance and steals power from you, but it threatens the aviation engine with destruction in a few seconds.

While the need for anti-knock quality in gasoline for airplanes greatly exceeds the demands of automobile engines, the fuel improvements resulting from the operation of the new testing unit may ultimately make possible the increased power and better performance that car drivers will enjoy.

Flight conditions are simulated by huge blowers which supply air at any desired pressure or temperature within the range experienced at various altitudes.

The operation of the test stand is automatically controlled in an adjoining instrument room which is protected from the intense sound in the test stand room by a 16-inch concrete wall in which there are no doors. For observation, the operators use three windows in the wall, each of which has four panes of glass of varying thickness to minimize sound transmission.

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