



panion though the spectroscope, which analyzes star light, reveals its presence.

In actual candlepower, Rigel is by far the brightest of our stellar septet, for it exceeds the sun some 21,000 times. Its distance is 540 light years; if it were as close as Sirius it would be brighter than any planets ever appear. The spectroscope shows that it also has a companion, that goes around it once in about three weeks.

Procyon, which comes next, is shown by a large telescope to be a double star, and the two parts revolve around their center of gravity in 40 years. The larger member contains about 1.4 times as much matter as the sun, and the smaller about 0.4 as much. Most of the light of the system comes from the larger one, which is 6.9 times the sun's candlepower. Procyon's distance is 11.1 light years, one of our close neighbors.

Points of Light

The stars are so far away that even when magnified with a powerful telescope they still appear only as points of light, not as disks like the sun or full moon. However, a few are so big and close that, with an instrument called the interferometer, it is possible to measure the diameter. Betelgeuse was one of the first measured, and its diameter is about four times the distance of the earth from the sun—some 270,000,000 miles. (The sun's diameter is only 864,100 miles!) In contrast to the companion of Sirius, it is a giant star, with very low density—so low, in fact, that if we had some on the earth we should call it an excellent vacuum! It varies in brilliance, but, intrinsically, its average brightness is 3,600 times that of the sun. Its distance is 300 light years.

Aldebaran, with characteristic red color, is 53 light years away and 91

times the brightness of the sun. In diameter it is about a third of the distance between sun and earth. It also has a faint companion, about 46,000,000,000 miles away from it.

Pollux, finally, is at a distance of 29 light years, and exceeds the sun in luminosity 25 times. As far as we know it is a single star like our sun.

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Celestial Time Table for December

Dec.	EWT	
1	4:00 p.m.	Saturn closest, 751,000,000 miles.
7	9:59 p.m.	New moon.
8	6:30 a.m.	Moon passes Venus (not visible).
	8:00 p.m.	Moon nearest, 222,600 miles.
9	2:57 a.m.	Algol at minimum.
11	11:46 p.m.	Algol at minimum.
12	Early a.m.	Meteors of Geminid shower visible.
14	1:47 p.m.	Moon in first quarter.
	8:35 p.m.	Algol at minimum.
20	12:43 p.m.	Moon passes Saturn.
22	7:40 a.m.	Sun farthest south, winter begins in northern hemisphere, summer begins in southern hemisphere.
	11:03 a.m.	Full moon.
23	7:00 p.m.	Moon farthest, 252,500 miles.
24	9:22 a.m.	Moon passes Jupiter.
29	4:41 a.m.	Algol at minimum.
30	2:37 p.m.	Moon in last quarter.

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NUTRITION

Watch for Vitamin A In Butter Substitutes

➤ IF BUTTER is rationed, and the prospect is already being discussed, more of us will be wondering what to spread on our bread and put in our cakes.

Most of us will turn to one of the margarines as a butter substitute for table use, though other fats may be substituted for butter in cooking. The margarines are made by churning bland fats other than butterfat in ripened milk, generally skim milk. The fats may be vegetable, nut or animal or a combina-

tion, but it is required by law that the product be labelled oleomargarine.

Butter furnishes fat, and therefore calories, and also vitamins A and D. Oleomargarine furnishes the same amount of fat (81%) and the same number of calories (3,325) per pound as butter, according to U. S. Department of Agriculture tables giving the composition of American food materials.

The amount of vitamins A and D furnished by butter varies widely, and depends largely on the cow's feed. Summer butter usually has more vitamin A than winter butter unless the cow's winter ration is reinforced with the vitamin. The amount of vitamin A in butter may vary from less than 1,400 to more than 27,000 International Units per pound. Butter in Washington, D. C., retail markets in winter has about 13,650 International Units per pound, according to U. S. Department of Agriculture figures.

Oleomargarine is not considered a good source of vitamins A and D unless it has been fortified by the addition of vitamin concentrates. Some vegetable oleomargarines have been fortified. The label tells whether they have and how much vitamin A has been added. Manufacturers of oleomargarines that contain animal fats inspected under the Federal Meat Inspection Act are not permitted to add vitamin concentrates.

The national nutrition yardstick, drawn up by leading scientists in the field of health, medicine and nutrition, calls for some butter daily, or margarine with vitamin A added.

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PALEONTOLOGY

"Strange Skull" Fossil Is Now Identified

➤ WITH TWO great bulbous projections above the middle ear region, one of the most singular mammalian skull fossils ever seen has been described at the Academy of Natural Sciences in Philadelphia with a scientific name that means "strange skull": Xenocranium. The name was bestowed by Dr. Edwin H. Colbert.

The extinct creature, represented only by a skull and lower jawbone, lived in what is now Wyoming some 60,000,000 years ago, near the beginning of the Age of Mammals, in the period called Oligocene by geologists. It belonged to the class known as edentates, which includes modern armadillos and their relatives.

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