



tem, the precise prediction of the moon's motion is a very complicated problem. Therefore it has to be checked by occultations, that is, the hiding by the moon of stars in the distant background. Their position is well determined, the time of an occultation can be predicted, and if it does not happen on schedule, the difference, always very small, is a result of inaccuracy of the moon's own motion.

The moon cannot be eclipsed unless it is on the side of the earth away from the sun, that is at full moon, for that is the direction in which the earth's shadow extends. Ordinarily at full moon, our satellite is so brilliant that it is difficult to observe these occultations, especially of fainter stars, but the eclipse dims it so much that they can then be made.

A lunar eclipse is very interesting to watch, especially as the curved shadow of the earth crosses the moon's surface. This, incidentally, is an excellent proof of the roundness of the earth, and was so recognized in early days. The shadow is always the arc of a circle. Nothing but a sphere, of course, can always cast a round shadow.

The red color of the eclipsed moon is

caused by the refraction, or bending, of the light of the sun by our atmosphere. Without it, the shadow would be sharply defined, but with it, the sunlight that grazes the earth is bent into the shadow and falls upon the moon, even when fully shaded. As this light passes through the air, blue rays are scattered, and this gives the daytime sky its blue color. Deprived of the blue, the light that emerges is predominantly red, and the moon, in eclipse, takes on a ruddy, coppery color that used to strike terror into the hearts of primitive men when they saw it.

#### Celestial Time Table for October

**Friday, Oct. 6,** 12:27 a. m., Moon at last quarter. **Tuesday, Oct. 10,** 8:00 p. m., Moon nearest earth — 224,700 miles. **Thursday, Oct. 12,** Total eclipse of sun; 3:30 p. m., New moon. **Thursday, Oct. 19,** 10:24 p. m., Moon at first quarter; Orionid meteors. **Saturday, Oct. 21,** 1:09 p. m., Moon passes Mars; 10:00 p. m., Saturn nearest earth—distance 771,900,000 miles. **Sunday, Oct. 22,** 6:00 p. m., Moon farthest from earth—distance 251,600 miles. **Wednesday, Oct. 25,** 11:42 a. m., Moon passes Jupiter. **Friday, Oct. 27,** 3:09 p. m., Moon passes Saturn. **Saturday, Oct. 28,** Early morn., Eclipse of moon; 1:42 a. m., Full moon.

Eastern Standard Time throughout.

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#### GEOGRAPHY

## Rumania Has Grain, Wood, Richest Oil Fields in Europe

RUMANIA, mentioned as "next" for the Nazi razor of conquest, would be an especially juicy bit from the German point of view. Not only does the country contain the richest oil fields in Europe and some of the greatest grain and timber production areas, but within its present boundaries are three big blocks of real estate that might be used as bribes for the winning of three nations

as yet in the neutral list but commonly credited with leanings in the Nazi direction.

First and largest is Transylvania, comprising something like a third of Rumania's total area. Before the First World War it was part of Hungary, its boundary running along the crest of the Transylvanian Alps which now form the backbone of the Rumanian kingdom.

Transfer of this rough and mountainous province to Rumania by postwar treaty cut Hungary in half and swelled the shape of Rumania from a prewar kidney-bean to a postwar round cookie. Hungary has been very sore about the loss of Transylvania and probably could be easily induced to join the Nazis if return of this lost province were held out as an inducement.

Second possible bribe-slice would be Bessarabia, a wedge-shaped stretch of lowland between the Pruth and the Dniester rivers, its coastline coming down to the mouths of the Danube. Rumania took this away from Russia during the latter country's period of revolutionary disorganization. Russia would undoubtedly be glad to get Bessarabia back again, along with the formerly Russian parts of Poland.

#### Bulgaria Hopes

Finally, there is the stretch of coastal land south of the mouths of the Danube, known as the Dobrudja. This was part of Rumania before the First World War, but Bulgaria has always had a covetous eye on the province. Hope of getting it was one of the considerations that brought Bulgaria in on the side of Imperial Germany, and the same hope might bring her in again as an ally of Nazi Germany.

A military venture against Rumania would be psychologically easy to "sell" to the Germans. Rumanian troops have always been regarded as "soft"; and it is true that when Rumania entered the First World War on the side of the Allies she was promptly knocked out in one sweeping campaign under the ruthless Mackensen.

They might be disappointed in one respect, however. Undoubtedly, the hope of getting full command of Rumanian oil would be a prime motive for a German invasion. However, it is known that the present leaders in Rumania, who were young soldiers when their country had to suffer humiliating defeat twenty years ago, would ruin their oil wells with dynamite and fire rather than see them fall into the hands of a hated enemy.

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#### ● Earth Trembles

Information collected by Science Service from seismological observatories and relayed to the U. S. Coast and Geodetic Survey resulted in the location of the following preliminary epicenter:

**Friday, Sept. 22, 4:27.4 p.m., EST**

Near eastern coast of Lower California. Latitude 30 degrees north, longitude 114 degrees west. Rather sharp shock.

For stations cooperating with Science Service in reporting earthquakes recorded on their seismographs see SNL, June 17.