



THE TWO BRIGHTEST STARS

*Vega and Mars are found in the southern July skies, the first high in the east and the second low in the west*

Jupiter, the planet that was so brilliant in the evening sky in recent months, is now close to the sun and invisible. Saturn succeeds to its place as the conspicuous planet. On the thirteenth of the month it is directly opposite the sun, and then it rises at sunset. Thus it is visible low in the eastern evening sky. Its steady light, brighter than any nearby star, makes it easy to identify. Of the stars now visible, only Vega, shining high in the east, and Arcturus, high in the west, exceed it in brilliance, and even they are only slightly brighter. A second planet to be seen these July evenings is Mars, low in the west. It can be located by its steady, red light.

Six first magnitude stars are to be seen in the evening sky this month. Brightest of all is Vega, in Lyra, the lyre, nearly overhead, to the east of the zenith. Below Vega is Cygnus, the swan, sometimes known as the Northern Cross. The cross is lying on its side. The bright star Deneb, at the northern end, also marks the tail of the swan. High in the southeast is the constellation of Aquila, the eagle, containing the bright star Altair.

In the south, near the horizon, is the ruddy Antares, marking the group of Scorpion, the scorpion. The tail of the animal runs from Antares to the southeast, curving at its end in a very realistic manner. High in the western sky is the constellation of Bootes, containing Arcturus, second brightest star now in the evening sky. Below this group is Virgo, the virgin, in which Spica shines.

After reaching the phase of last quarter on the seventh of the month, the

moon is new on the fifteenth. By the twenty-second it reaches first quarter, when it is directly south at sunset. It is full on the 29th, so the last two weeks of the month will be favored by bright moonlight evenings.

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#### PHYSICS

### New Process Cheapens Ultraviolet Glass

DEVELOPMENT of a completely automatic process of manufacturing window glass of high ultraviolet transparency has made possible the production of this glass in quantity at about one-fourth the cost under old methods. The new glass has been described by Donald E. Sharp, glass technologist.

#### METEOROLOGY

## Atmosphere Said to be Very Hot Fifty Miles Above Earth

JUST A MERE fifty miles above our heads the temperature is between a thousand and two thousand degrees Fahrenheit, according to a new theory of the earth's atmosphere presented by Prof. B. Guthenberg of the California Institute of Technology. This extremely hot weather a few miles up comes as the result of Prof. Guthenberg's novel theory that the atmosphere is practically the same in composition throughout and not exclusively helium in some high

The new process has been installed in a large commercial plant in which, during the first month of operation under the new system, approximately 200,000 square feet of ultraviolet transmitting glass were manufactured. Production for the remainder of the year is expected to reach nearly 2,000,000 square feet.

While methods of making ultraviolet transmitting glass have been known for years, Mr. Sharp explained, it has been possible to make glass of workable commercial quality only in relatively small amounts with much hand labor and at great cost. Although glass made under the new process still costs two or three times as much as ordinary glass, it is cheaper than plate glass and about 75 per cent. less than it was six months ago.

Technical difficulties involving composition, crystallization, and annealing are overcome by the new process, Mr. Sharp stated. It was explained that a special variation of the Fourcault window glass system, which permits the drawing of large, continuous sheets, is used. As is generally known, this glass must be almost entirely free of iron.

"Up to the present, attempts to make ultraviolet transmitting glass in this country by automatic means have resulted only in the production of glasses which in ordinary thickness had an ultraviolet transmission of only two or three per cent. for the ultraviolet wavelength known as 302 millimicrons. The new process produces a glass that will transmit permanently through the standard thickness of about eight one-hundredths of an inch, more than 50 per cent. of the ultraviolet light it receives from the sun."

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layers, as other physicists have concluded. Although the temperatures are high in the heights of the stratosphere, the air is very diffuse and thin. Only a rocket could actually penetrate the atmospheric heights to bring back evidence of what actually exists there, Prof. Guthenberg said. The shells of the long range gun used by the Germans in bombarding Paris probably traveled in a highly heated region.

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