

THE HEAVENS IN FEBRUARY

The Whole of the Constellation of Leo Now in View—Look for Denebola and Gamma Leonis—Saturn and Mars Both Visible to the Naked Eye.

Eclipse of the Sun February 3—Visible as a Partial All Over the United States—Begins About 10 A. M.—Eastern Standard Time—Ends After Noon.

(By C. S. Brainin, of the Columbia University Observatory Staff.)

February brings to our view the whole of the constellation of Leo, the Lion, only part of which could be shown on the January map. This is one of the so-called zodiacal constellations, that is one of the constellations through which the Sun passes in his yearly round of the celestial sphere. This group of stars seems to have been connected with the figure of a lion in all the ancient astronomies and owes its particular importance to the ancients to the fact that the sun occupied a position in this very constellation at the time of the summer solstice at a period in history about corresponding to the dawn of scientific knowledge.

Owing to the motion of the celestial pole called the "Procession of the Equinoxes," the sun is now in the group of the Heavenly Twins at the time of the Solstice. Of Regulus, the royal star, the brightest of Leo, we spoke in last month's article—the next brightest is Denebola, the Lion's Tail, the unlucky star. Denebola is a star of a bluish tinge and seems to have been brighter in older times than it is now. It is approaching the earth at the rate of twelve miles per second and is now about thirty-three light years distant from the solar sys-

tem one; but that is because the eclipse, when it happens, can only be seen as a total eclipse over a very limited area. Perhaps every one of us has seen many partial eclipses, but they are of less interest as spectacles and of little or no value to science. The present eclipse will be seen as a total only over a narrow strip passing over Colombia and Venezuela and across the sea to the Azores; but as a partial the eclipse will be visible all over the United States. In the vicinity of Washington and New York the eclipse will begin approximately at 10 o'clock in the morning and end after noon. In the central part of the country it will begin earlier.

In trying to understand how eclipses of the sun come about, bear in mind that, as the earth revolves about the sun, so the moon revolves about the earth, being now between us and the sun, now outside of the earth's orbit. The earth's orbit about the sun all lies in one plane, called the ecliptic; neither body ever gets out of this plane. Similarly with the earth and moon. The moon's orbit around the earth lies in a plane, and this plane is not the same as the above-named ecliptic plane, but makes only a small angle with it. Now, it sometimes happens that in his revolutions about the earth the moon gets right in between the sun and the earth in such a way as to obstruct the light of the sun on its way to the earth, exactly as someone might walk between you and the lighted lamp in your sitting room. The lamp is then in "solar" eclipse. Inasmuch as the moon must always be directly between the sun and earth at a time of solar eclipse, the phase of the moon which corresponds to this position is that of new moon.

Not every new moon will bring us some kind of solar eclipse, however, because, in order that the moon may



THE PALAIS ROYAL

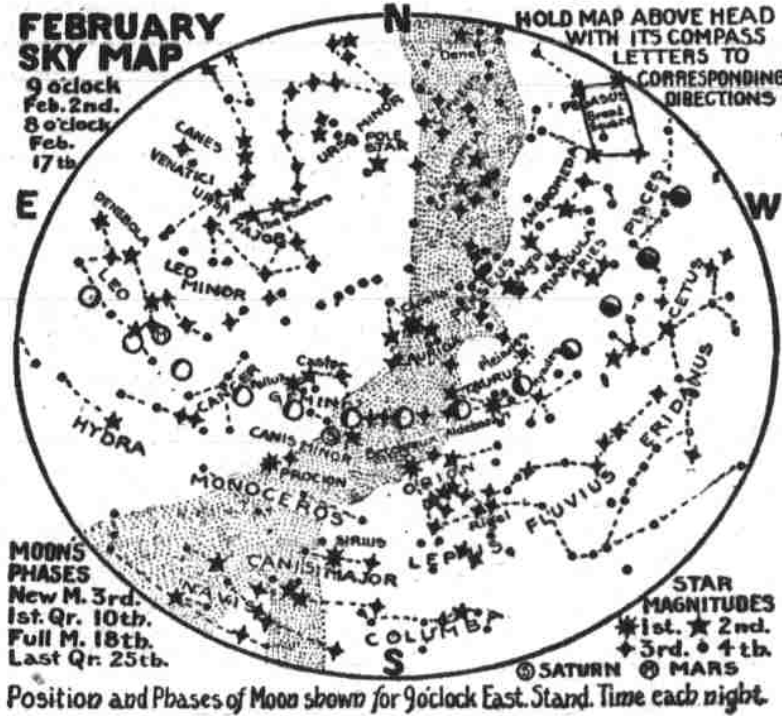
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PAUL JONES MIDDY BLOUSE



tem. In intrinsic brilliancy it is about ten times as great as the sun. Gamma Leonis, the bright star just north of Regulus, is a well-known double star. A small telescope will reveal the two components and show them of different colors.

Two of the Planets, or Wanderers, are visible to the naked eye this month at the time of our map. Saturn you will find in the constellation of the Gemini, below and to the west of the two bright stars, and Mars in Leo, near Regulus. Both can be distinguished from the neighboring bright stars by the absence of the twinkling.

The Total Solar Eclipse of Feb. 3. A total eclipse or darkening of the sun's disk is, indeed, one of the most important, as well as interesting, of astronomic phenomena and one which is not exceedingly rare. Yet it is true that very few people ever get to

obstruct our vision of the sun, it is necessary for him to be directly, or very nearly, on the exact straight line joining the sun and earth. If he be too much above it or below it, we will have the usual occurrence of a new moon without the eclipse. If the moon's orbital plane were the same as the ecliptic, or earth's plane, an eclipse would occur at every new moon; for then the moon would always be in the same plane with the earth and sun and could not help getting directly in between the sun and earth as it turned about the earth. We have seen above that the moon's orbital plane makes an angle with that of the earth, and so it will be only when we have a new moon at the time that the moon in his orbit is in a place very near the earth's ecliptic that we shall have an eclipse. Of course, at the intersection of these two planes the new moon will be in both planes at once; so we would have an eclipse then, and also if the new moon occurs at places very near this intersection point. (note.)

Not every eclipse will be a full and total darkening of the sun's disk; the moon may pass in such a way as to cover up only part of the disk. Again it may happen that the moon is so far from the earth that when he passes the sun he covers up only the central portion, and we see around the black moon a bright ring of the sun's disk. This is called an annular eclipse. There will be one of those on July 29 of this year, visible only in the regions about Australia.

The Saros or Repetition Period. It is a very interesting fact that, if a certain eclipse happens on a given date, in exactly 6,585 days we shall have an absolutely similar eclipse occurring. This period, called the Saros, was discovered long ago by the ancient Chaldean astronomers. It is the lowest common multiple of several of the lunar periods, so that after this number of days conditions are bound to repeat themselves.

What does the fortunate one who finds himself in a location of visibility of a total eclipse really see? As the moon slowly creeps across the face of the brilliant sun no apparent difference is at first noticed in the general illumination. Only as it approaches the crescent shape we notice that images of the sun formed on the ground by the small spaces between leaves on a tree are of a crescent shape. But as the moon silently devours more and more of the sun's disk, the darkness mysterious and unearthly, increases rapidly, till only a small thin strip of the sun is left. Then suddenly the gloom reaches its maximum, and the sun is entirely cut off. But in that same moment there bursts upon our view the boundless beauty of the silvery corona and the protuberances flaming rose-red in great streams about the blue-black shadow of the moon. Three or four minutes this lasts, and then suddenly a shaft of sunlight strikes the earth and melts away the glorious color display, not to be seen again until the next eclipse.

ONE WAY.

"There's nothing in art. I can't make a living at it."  
"Maybe you can. Try selling correspondence courses in it."—Courier-Journal.

OVER 200,000 ARMENIAN REFUGEES NEED RELIEF

ERIVAN, Transcaucasia, December 15.—If this war has displayed few dramatic developments on the European battlefields it has undoubtedly shown several tragical turns on this remote Transcaucasian front—tragical at least for the Armenian people, whose existence has been shattered from the beginning of this war.

Speedy marches of the Russo-Armenian forces into Turkish Armenia, a heroic battle for self-defense followed by a victory of the Armenians of Van and the expulsion of the Turks from that city, a disastrous retreat of the Armenians into Transcaucasia for safety and other events of a similar character have succeeded each other with dramatic rapidity. And now, after a year of such vicissitudes, about 150,000 refugees, the last remnant of the Armenian element in Turkish Armenia, are quartered within the borders of Russian territory, to tide over the rigors of the coming winter.

According to an official estimate there are some 180,000 refugees scattered in four provinces of Russian Transcaucasia, and some 30,000 Armenians, Nestorians and others now quartered in Persia.

The greater part of these Armenian refugees have come from the city and province of Van; the remainder constitute the aggregate of what used

to be the Armenian element in the various Armenian provinces of Turkey. Made Heroic Defense. At the outbreak of the Russo-Turkish War the speedy advance of the Russian army into the Euphrates Valley saved almost the whole Armenian population of the district. Then Armenians of Van and of the province fought a heroic war of self-defense, captured the town from the Turks, and thus saved themselves from the general massacres which the Turks carried out in Armenia and Asia Minor.

Though they bravely defended themselves against great odds, the Armenians of Van had to retreat in the rear of the Russian army when the latter retired toward the end of July owing to the Turkish offensive.

This withdrawal of the whole Armenian element of Van was effected under the most adverse circumstances. Only twenty-four hours was given them to quit their homes, and there were very scanty means of transport. Some 250,000 people, already sorely tried during the previous few months, had to march a distance of more than 100 miles into Transcaucasia. They had no provisions whatever, and, exhausted by hunger and thirst, walking in dust and under the scorching August sun, they suffered horribly on their journey. Those who lagged behind were attacked by Kurds; many women threw themselves into the River Bendimahu in order to save themselves from Kurdish brutality; others dropped their children and continued the frightful march, which lasted some twelve days.

Virulent Epidemics. Terribly strained and fatigued, these unfortunate Armenians reached Echmiadzin (where the Catholics, the head of the Armenian church, resided), Erivan and other Armenian centers in Transcaucasia, to find few measures taken for the reception of this harried and exhausted mass of humanity. Typhus, spotted fever, dysentery, and, later on, cholera and other epidemics, broke out in virulent form and literally decimated these homeless and footless refugees. There were very few doctors or nurses to attend the sick, and still less accommodation was provided for feeding and housing the refugees, who, owing to the lack of food and attendance, died like flies. Some thirty thousand of these refugees have died since August, and in spite of the energetic efforts since taken by Armenian and Russian organizations to deal with the destitution and the fatal consequences, the rate of mortality is still fearfully high, amounting at present to something like a hundred a day; and, seeing that winter is already here, it can hardly be expected that the rate will decrease.

An Army of Orphans. Some 20,000 orphans, whose parents have fallen in the last few months, have already been taken care of in

various orphanages and convents. Seven hospitals have been improvised at Echmiadzin, and several others have been started or are in the process of opening at important refugee camps in Transcaucasia. Yet the mass of the remnant of the Armenian population, happy and victorious in their own homes as recently as last May, are crowded into camps under the most unhealthy conditions, deprived of all elementary comforts of daily life, trying to live on less than eight cents a day per head, which they get as relief from the various distributing organizations.

The existence of one of the oldest Christian nations in the East, the larger portion of which has already been massacred by the Turks, is now hanging in the balance, and one may say that its ultimate fate rests with the civilized nations of the west.

WILLING TO TRY.

Mrs. Peck—"They've talked over 2,500 miles by wireless. I wonder if you could hear me that far away, Henry?"  
Henry Peck (wisfully)—"I wonder!"—Judge.

To give concrete columns for buildings wide foundations, a German engineer has invented a method for blasting away the earth with dynamite, making a hole which soft concrete quickly fills.

HOW TO LIVE ONE HUNDRED YEARS.

(From Chicago Herald.)

How to live to be 100 years old is told by "Uncle Cape" Stanley, the centenarian of Downers Grove. Here are some of the rules that have governed his own life, 74 years of which have been lived in Chicago's western suburb.

- "Mind your own business.
- "Don't quarrel with your neighbors.
- "Pay for what you get and when you get it.
- "Live within your means.
- "Laugh every time you find something to laugh at.
- "Don't eat between meals.
- "Eat plain food and plenty of it.
- "Don't drink intoxicating liquors.
- "Don't smoke or chew tobacco.
- "Keep up your interest in the news of the world.
- "Go to bed early with a clear conscience and get up with the birds.
- "Sleep eight to nine hours out of the 24.
- "Don't worry about things you can't help.
- "Work and exercise outdoors as much as possible."

A large Eastern railroad is instructing its signal erectors and testing its engineers' knowledge of signals by means of motion pictures shown in a car which travels over its lines.

SHIRT SLEEVES IN THE PULPIT.

(Pittsburgh Chronicle-Telegraph.)

The Ohio clergyman who preaches to his congregation in a gray flannel shirt and old trousers, without a coat and with a red bandanna handkerchief sticking out of his hip pocket, may imagine he is making a hit with the workmen who go to hear him, but the chances are they would be glad to see him conform a little more closely to the convention. In their well-meant endeavors to be "good fellows," "all-round mowers" and "get down to the level of the people" ministers often make the mistake of overdoing the thing. In this particular instance the preacher decries the placing of too much emphasis on the matter of dress and yet he is actually going out of his way to accentuate oddity in attire for the purpose of attracting attention. There is no reason to suppose that workmen care to be reminded on Sunday of the kind of clothes their occupation compels them to wear during the week or that their respect for the pulpit is increased appreciably when the occupant goes coatless or assumes a garb that is manifestly inappropriate to the surroundings.

Whatever conditions may be in other lands, in the United States laboring men are accustomed to wear clothing of excellent fit and quality and to take a pride in doing so.

IT'S YOUR LIVER! YOU'RE BILIOUS, HEADACHY, SICK!

Don't stay constipated with breath bad, stomach sour or a cold

Enjoy life! Liven your liver and bowels tonight and feel fine.



Tonight sure! Remove the liver and bowel poison which is keeping your head dizzy, your tongue coated, breath offensive and stomach sour. Don't stay bilious, sick, headachy, constipated and full of cold. Why don't you get a box of Cascarets from the drug store now? Eat one or two tonight and enjoy the nicest, gentlest liver and bowel cleansing you ever experienced. You will wake up feeling fit and fine. Cascarets never gripe or bother you all the next day like calomel, salts and pills. They act gently, but thoroughly. Mothers should give cross, sick, bilious or feverish children a whole Cascaret any time. They are harmless and children love them.

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