

WHEN SUN WILL HIDE ITS FACE

A Total Eclipse Occurs on August 30.

PATH OF THE SHADOW

Winnipeg the Place Where Phenomenon Will First Be Painly Observed.

Astronomers are at present busily engaged in making preparations for a great event on August 30 next. On that day there will be a total eclipse of the sun. There have been, however, so many total eclipses within the recollection of most of us that the question may well be asked as to why we are to pay any particular attention to this eclipse among the number. The reasons are easily stated. In the first place, the duration of totality at the best stations is fairly long. The complete obscuration of the sun will last for three minutes and ten seconds. It is doubtful under a combination of favorable circumstances eclipses can and do sometimes happen in which the duration of totality, as it is called, is considerably greater.

In some eclipses it has been, indeed, nearly twice as great. On the other hand, in many total eclipses which have been deemed worthy of the attention of the astronomer, the precious seconds of totality have been barely half as many as those which will be available next August.

But a special reason why we hear so much about this eclipse of this autumn arises from the fact that it can be seen under the most favorable conditions in localities easily reached by a few days' journey. The middle of the eclipse—that is, the occurrence of totality at noon—can be observed by those who travel no greater distance than to the north of Spain. There, either at Burgos, or at a place one-third of the way from Saragossa to Madrid, or at Morella, there will be good prospect of clear weather, and a view of one of the sublimest of natural phenomena under the best possible conditions for observation.

Methods of Observation. Of course, without leaving our homes the eclipse of next August will be visible to some extent. It will be visible over the whole of Europe, and the greater part of Africa. It will be visible over the north Atlantic, and over a great part of Canada, and doubtless will be seen by many hundreds of thousands of observers. It may here be mentioned that an eclipse of this kind can be observed on a bright day when the sun is high. In a manner which, though it may not be actually instructive from a scientific point of view, is certainly pleasing and picturesque.

This observation is made, strange to say, not by looking up to the sun, but by looking down upon the ground. When the sun throws a shadow of a tree on the road, the rays of light passing through interstices between the leaves, from bright spots, which though we may not ordinarily notice the fact, are really images of the sun. When a large part of the bright part is reduced to a crescent, and consequently each of the myriad little solar images on the ground present to us beautiful crescents.

A most satisfactory way of observing the phenomenon is to take a scientific instrument of a telescope, and then to arrange that the image of the sun shall be thrown on a screen. By this device a greatly enlarged image of the sun is obtained, and the excessive brilliancy is suitably reduced.

But the characteristic phenomena which make eclipses so important are never exhibited when the phase of the eclipse is no more than a partial one. Complete extinction of the sun is necessary, or, in other words, it is necessary for the observer to take up such a position that the shadow of the moon shall pass over him as that shadow sweeps over the earth. It is with the object of getting into the track of the shadow that astronomers are now preparing for a visit either to Canada, or to Spain, or to Tunis, or to Egypt, for the line passes through these countries as well as through Spain.

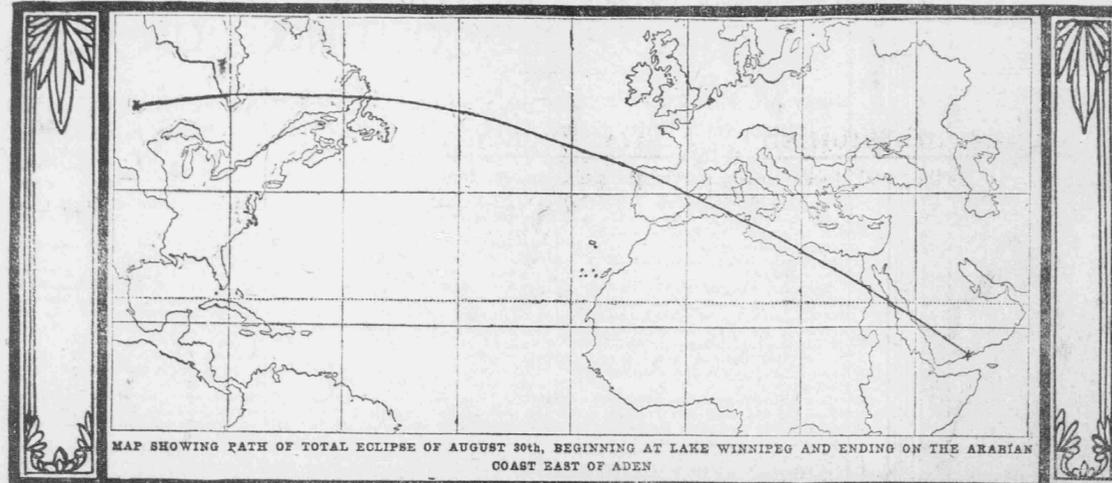
The width of the shadow track is approximately 100 miles, but toward each end of the track the duration of the totality diminishes, so that to see the eclipse under the most favorable conditions a position should be taken as near as possible to the central line.

Path of the Shadow. Just nineteen minutes before noon on August 30, 1905, Greenwich time, the shadow cone of the moon, by the sun, after rapidly moving through space, first strikes the earth. The place so honored is about Winnipeg, and the industrious farmers will there doubtless be astonished to see the rising sun appearing as a black globe. The shadow has fallen on the earth, and now as a black spot about 100 miles in diameter it commences an eastern rush at headlong speed across our continent and oceans.

In two or three minutes after its arrival it has crossed Hudson Bay, and then just five minutes before noon in London, the shadow launches from the coast of Labrador upon the Atlantic. Over the Atlantic the black spot rushes. Generally, of course, the shadow is cast upon a mere waste of water, but it may no doubt occasionally happen that the mariner has to record in his log that he was overtaken by the shadow, that bright day was suddenly transformed into night, and any lights which happened to be burning on the vessel would then stream forth into the gloom with unexpected brightness. Nearly an hour is occupied in this ocean transit, during which, from the astronomer's point of view, the eclipse is wasted.

As the Greenwich clock shows ten minutes to 1, the sun being now high in the heavens, and consequently the opportunities for observation being at their best, the Atlantic journey is over, and the shadow enters Europe near Cape Finisterre. For about twenty-five minutes the course lies through Spain, and then the Mediterranean is reached. This sea is crossed till Tunis is entered about 1:40. Then again follows a passage over the sea until Egypt is entered at 2:30. Twenty minutes later there is a crossing of the Red sea, and now the earthly journey of the shadow is drawing to a close, and it ends in Arabia

HOW AND WHEN OLD SOL WILL HIDE HIS FACE BEHIND THE SHADOW OF THE EARTH



MAP SHOWING PATH OF TOTAL ECLIPSE OF AUGUST 30th, BEGINNING AT LAKE WINNIPEG AND ENDING ON THE ARABIAN COAST EAST OF ADEN

Mysterious Sea Craft Beneath State Department

Curious Boat, Freshly Painted, and Recently Supplied With Oars, May Have Been Built in Cellar.

Employees in the subterranean passageways of the State, War and Navy building are agitated over the mystery of the building of a full-fledged row-boat, which has recently made its appearance in the carpenter shop on the State Department side of the building. The boat is about fifteen feet long, freshly painted, and has just been equipped with a pair of oars. For what reason the boat should have been constructed in the carpenter shops of the State or War Departments, men employed in the lower sub-basement of the building are unable to guess. Inexplicable Mystery. If it had been built on the Navy Department side, say these individuals, there might have been some explanation for its existence. But there it is in the State Department lumber shop. Who its owner is and its future destination are puzzling a lot of people.

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WHITE MINERS ASK FOR PROTECTION

Those in the Transvaal Complain of the Conduct of Chinese Laborers.

JOHANNESBURG, July 29.—The Miners' Association has had an interview with Lord Selborne, asking for greater protection of the white workers against the Chinese. Lord Selborne said that as white men their responsibility was to be firm and strong, never familiar. They should be just and patient, and, above all, fearless. The miners said the chief cause of the differences was the bad language expressed by the Chinese in English toward the white females. To this Lord Selborne replied that they must have learned the language from the miners, who could not maintain their respect if they used bad language and got drunk before the Chinese. There have been only twenty cases of assault, and this, said his lordship, supported the Chinese character for docility and for being easily managed. Lord Selborne, however, promised to consider the miners' suggestions to have Kaffirs with them as a protection when underground.

YELLOW FEVER TRACED TO FESTIVE MOSQUITO

French Medical Men Agree With American Scientists as to Origin of Disease.

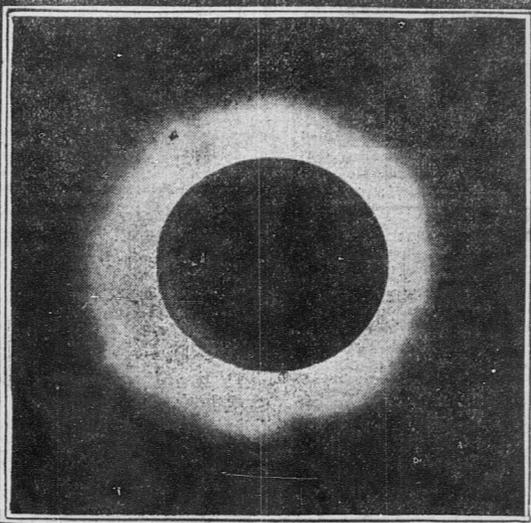
PARIS, July 29.—Much interest has been caused in medical circles by the reports of Drs. Marchoux and Simond from Brazil, where they went five years ago to investigate the cause and cure of yellow fever. The doctors do not profess to have made any remarkable discoveries, but their researches confirm those of their American confreres, who studied the yellow scourge in Cuba. They have ascertained that the microbe of "Yellow Jack" is extraordinarily fragile, and perishes speedily if exposed to the air or a certain degree of heat. It cannot exist above a certain altitude. They agree that the virus of the fever exists in the blood of the victim, and that the vehicle of infection—for yellow fever is not contagious—is a certain well-known type of mosquito which transmits the poison from the already infected to the healthy. The doctors maintain that if this mosquito could be exterminated there would be no yellow fever. Their methods of fighting the disease are by inoculation of the healthy with serum, and a plentiful use of petroleum.

at 2:32, having occupied two hours and forty-six minutes in its course from Canada. At the ends of its track the duration of the totality is about two minutes, and it is nearly double as long in the central part of the track. Expected Results. The circumstances of this eclipse are in every way so favorable that astronomers are making strenuous efforts to observe it at various places throughout its long journey. The eclipse will be observed before it leaves the American coast in Labrador, not only by American observers, but by astronomers who will travel thither from Europe. Then, of course, special attention will be directed to the observations in the north of Spain, and also in Tunis and in Egypt.

Thus at widely distant stations along the track elaborate photographic appliances for depicting the appearance of the corona and for obtaining information as to its spectrum will be busily engaged. This wide distribution of the observing stations makes it highly probable that even if the weather be unfavorable in some places it will not be so in all places. Thus some results may be considered as practically certain, but there is another advantage of a very different kind. The duration of the total eclipse under the most favored condition still falls somewhat short of four minutes. There is thus but a very brief interval between the first and the last photograph that one observer can take. If, however, the corona be photographed by another, there may be an interval of as much as two hours between the two exposures. The importance of this will be appreciated when we bear in mind one of the principal problems which it is hoped this eclipse may enable us to solve. The mysterious corona, well shown in the admirable pictures taken on April 16, 1893, by J. Kearney in West Africa, is certainly not a permanent structure, it is in constant movement, and in the intense energy of solar activity, the movements take place with such rapidity that

in the space of a couple of hours such large changes take place as would be quite conspicuous on the two photographs taken at such an interval. The experience of former eclipses has shown this to be the case, and it may reasonably be expected that further light will be gained by the opportunities afforded next August. It must be remembered that the corona is never visible unless under the rare opportunity of a total eclipse. The many artificial devices by which it has been sought to exclude the direct light of the sun, and thus render the faint corona visible, have never yet succeeded. Precious indeed to those who would penetrate the secrets of nature are those glorious minutes in the afternoon of August 30, 1905.

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WHAT A TOTAL SOLAR ECLIPSE LOOKS LIKE



GOVERNMENT RECEIPTS SHOW AN INCREASE

Treasury Report for July Convinces Officials That Tariff Legislation Is Not Necessary.

It was stated at the Treasury Department yesterday that the receipts for July, 1905, will approximate \$49,180,000 and the expenditures about \$22,800,000, leaving a deficit for the month of \$13,680,000. This is a much better showing than the statement for July of last year, when the deficit was \$17,300,000. The increase in receipts for July over last year is credited to customs and to internal revenue. The former is about \$2,000,000 in excess of last July and the internal revenue about \$500,000. The receipts also include a payment of about \$3,000,000 from the Southern Pacific Railroad Company on account of its semi-annual note due the Government on August 1. This will make the thirteenth semi-annual payment. There were no unusual expenditures this month—in fact, the expenditures are reduced about \$1,000,000. Treasury officials are much pleased with the July report, for with a continual increase in the receipts from customs and internal revenue and a decrease in the deficit as compared with last year, there will be no occasion, say the officials, for any tariff legislation.

PUMPED TWENTY SHOTS INTO BURGLAR'S BODY

Man Awakened by Noise in His Saloon Uses His Gun With Effect.

CHICAGO, July 29.—Awakened by a burglar alarm when two men entered the saloon under his home, Charles Valentini, 1233 West Harrison street, seized a shotgun, and surprising the men, fatally wounded one of them, at 2 o'clock this morning. The burglar, believed from papers found on his person to be Edward Carlson, was taken to the County Hospital. His companion escaped by jumping through a window. At the hospital it was found that more than twenty wounds had been inflicted on Carlson's body.

GRAND DUKE OF HESSE TURNS HOTEL KEEPER

LONDON, July 29.—Grand Duke Ernest Ludwig of Hesse, a relative of the English royal family, has, it is reported from Darmstadt, actually become proprietor and manager of a hotel, which is situated very near his own castle. Officially, of course, it is kept a secret with the duke has any connection therewith, and it accounts for the management are submitted to him for approval, and, as his own palace is very small, he has reserved a whole floor in the hotel for his own guests.

The Quality House Buy Your Wines of a Wine Merchant who intimately knows their nature.

DURING the summer season there is great demand for Red Wines to serve diluted as refreshing drinks. Indispensable for that purpose is Great Vintage of such Clarets. That requisite, however, is absent in nine out of ten cheap trade wines. Exactly the opposite is the case with even the cheapest of the four standards of

Advertisement for Christian Xander's Virginia Clarets, featuring 'VIRGINIA X-CLARET' and '6 Quarts for 90c'. It lists various wine standards and prices, and provides the address '909 7th St. Phone M 274'.

War Methods of Japan Startle Military World

Soldiers' Metal Accouterments Made of Aluminum—Light Burdens—Range Finders. Health Guards—Unique Devices.

The general staff of the army at present has more boards at work considering military questions of prime importance than at any time in its history. The success of the Japanese in the Far East has caused the activity. Reports of how the Japanese achieved their successes are just now being received by the general staff. Although months it is only within a month that the American officers sent to observe the operations of the Japanese army have been able to send in reports that were of any value.

Reports Suppressed. Before they had gained decisive victories over their enemies, Japanese commanders absolutely forbade the sending of reports that would be of any value. They permitted the observers to make reports on operations that did not differ in any way from the general manner of making the operations. Now that the Japanese commanders have driven the Russians to suing for peace they are permitting the observers to forward dispatches that give information that make officers on duty here open their eyes with wonder.

Reports from all branches of the Japanese army have been received by the general staff, except from the engineers. Major Kuhn is still in the field and unable to get through the reports that will be of worth to the American engineers.

Observers Isolated. So carefully guarded are the observers from foreign armies that it is almost impossible to reach them. Major Kuhn a few days ago received the winter clothing which he needed last winter. The delay is attributed to the caution of the Japanese and not to the faultiness of their means of postal communication. They want to be sure that parcels addressed to or by American officers do not afford the means of communicating to the outside world the wonders they have been accomplishing.

The quartermaster general's department is the one that has found most to think about in the reports from Manchuria. The extraordinary mobility of the Japanese troops, of course, is a fact which all the world has been speculating about. But the whole world has not been able to ascertain how the catlike moves were accomplished by men supposed to be weighed down by the customary camp accouterments, ammunition, and ordnance.

Light Burdens. The quartermaster's department has satisfied itself that the Japanese travel extraordinarily light. They do not carry as much weight as Americans would in like circumstances. They do not carry half as much, as a matter of fact. Every piece of metal in a Japanese soldier's carrying outfit is aluminum. He carries an aluminum canteen, an aluminum cup and wherever metal is required in the way of buckles, that light metal is used. His haversack is made lighter than an American soldier would have to pack with him. Everything is reduced to a minimum of weight.

Novel Intrenchment. Examination of the fields at Liao Yang and Mukden show that on every advance the Japanese army practically intrenched itself. The first line of skir-

mishers thrown out dug very shallow trenches. The second line occupied them and then moved forward. The third dug them still deeper and the fourth completed them. But in trenching the Japanese showed a new trick. They dug their trenches as if they were preparing to bury huge telegraph poles, each bearing as many crossarms as possible. The trench in which the pole was to be led back to the ammunition carts and the reserves. The transverse or arm trenches extended parallel with the front of the Russian positions. The ammunition servers passed through the long trench running from rear to front, and were never exposed to rifle fire at all. Shrapnel fire might reach them, but did not very often.

Entrapping Enemy. After having constructed the elaborate intrenchments in the face of the enemy's fire the Japanese were ready to show another trick. That was to fall back from their trenches nearest the enemy and thus invite him to charge forward, only to be met by the whole strength of the organization making the attack in the last trench, into which machine guns and mountain guns had been hurried as soon as it was completed. When the Russians reached the last trench the galling fire was too much for men entirely exposed, and they went down by the thousands.

Another fact with respect to their field work is that there was no blind firing. That is, there was no shooting simply because it was known that the Russians were known to be in a certain direction from the Japanese troops. There was no shooting until the range finders had picked up the Russians and the distance was accurately measured with the best scientific instruments the Japanese government could buy.

Range Finding. The men with range finders went out with collapsible extension ladders. They popped up all over the debating ground like jacks-in-boxes, took measurements, and telephoned the result to the men who were to do the shooting. Each finder-operator had a telephone trumpet strapped to his ears and a transmitter in front of his mouth, and he never took observations beyond the end of his coil of insulated telephons wires. This range finding work was done not only for artillery but for infantry as well.

But the most startling fact is that the Japanese forces never changed bivouac until after the medical corps had examined the site of the proposed camping place and agreed that it would not endanger the health of the men. The doctors were from twenty-four to seventy-two hours ahead of the army. After them came the quartermasters to assure a supply of water, fuel and forage for the horses before the fighting men arrived. By such precautions the army operating in Manchuria never had more than 1 per cent of the men in the hospital on account of sickness.

DAIRY COLLECTOR CHARGED WITH EMBEZZLEMENT. Clarence Deets, a young white man, was arrested by Detectives Horn and Flather yesterday, charged with embezzlement. It is alleged that young Deets, while in the employ of the Corbin-Thompson Dairy Company, collected various amounts of money, amounting to about \$100, which he failed to turn over to his employers. The dairy company claims to have been aware of the fact, that the young man has not been making the proper returns of money collected by him for some time past, but they wanted to give him a chance to make a restitution, and did not have him arrested. Deets, they say, did not seem inclined to make an effort to return the money, however, and his arrest followed.

Advertisement for 'The Peoples Pharmacy' featuring 'OPENING Souvenirs for Everyone' and 'Free Carnations Free Perfumery Free Cigars'. It includes contact information for M. G. Gibbs, Manager, at the corner of Seventh and I Streets.