

## AUGUST 30 WILL BE A BUSY DAY

The Denver News prints, from the pen of Robert Ball LL. D., the following:

"Astronomers are at present busily engaged in making preparations for 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 fifty seconds. No doubt under a combination of favorable circumstances eclipses can and do sometimes happen in which the duration of the 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 the attention of the astronomer, the precious seconds of totality have been barely half as many as those which will be available August 30.

"The middle of the eclipse, that is, the occurrence of totality at noon, can be observed in the north of Spain. There, either at Burgos, or at a place one-third of the way from Saragossa to Madrid, or at Merella, 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."

"The eclipse of August 30 will be visible to some extent 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 noted 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 form bright spots, which, though we may not ordinarily notice the fact, are

really images of the sun. When a large part of the disk of the sun is eclipsed then the bright part is reduced to a crescent, and consequently each of the myriad little solar images on the ground presents to us a beautiful crescent.

"A most satisfactory way of observing the phenomenon is to obtain the assistance 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, Spain, Tunis or Egypt, for the line passes through these other 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.

"At just 12:41 on August 30 the shadow cone of the moon cast by the sun, after rapidly moving through space, first strikes the earth. The place so honored is about Winnipeg, where the rising sun will be 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 continents and oceans. In two or three minutes after its arrival it has crossed Hudson's bay, and then, at just 11:55 o'clock in London, the shadow launches from the coast of Labrador upon the Atlantic.

"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 Finistere. 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 Egypt is entered at 2:04.

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 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.

"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 conditions 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 at Labrador by one party and at Egypt 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 picture taken on April 16, 1893 is not a permanent structure. It is in constant movement, and in the intense energy of solar activity the movements occur 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 August 30.

"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."

## CONSCIENCE AGAINST THE TRUSTS

Charles Edward Russell in his last article in Everybody's Magazine on "The Greatest Trust in the World" points out that no remedy for the trusts will be effective until the public conscience is educated to the point of recognizing the trust as morally wrong. Just as long as respectable people can conspire to rob their fellows through trust methods without losing caste it will be difficult to do anything. The failure to enforce the criminal law against trust magnates has created the impression that after all the trust is not really criminal.

The revelations that have been made concerning the swindling practiced by the priests of high finance is opening the eyes of the public but the prompt and vigorous enforcement of the criminal law would do much more.

The churches too, have a part in the educational work—they must teach that grand larceny is as wrong as petit larceny—that the rich man who bankrupts his rival through monopoly methods is as much an offender as the burglar—that the lawyer who sells his brains to those who conspire against the public is as guilty as one who helps to plan a hold-up. When the people fully understand the subject they will not be content with an occasional enforcement of the law; they will demand that all trust magnates be prosecuted just as they demand the punishment of all horse thieves and all house breakers.

Extracts from Mr. Russell's article follow: "The beef trust, like the oil trust, was built from illegal and prohibited rebates.

"For every rebate granted to the beef trust, for every advantage it has enjoyed, for the discrimination in rates and facilities that has made it what it is, some officer of some railroad has been responsible. These officers would not break the law for their own profit; they must not break the law for the profit of the corporations that

employ them. If they do, they must be regarded and treated exactly like any other criminals. We must cease to make any distinction between corporation crime and individual crime. We shall have to bring about a state of things in which it will not be possible for a man that has confessed to the granting of illegal rebates to remain in the cabinet of the United States any more than if he had confessed to murder. We shall have to cease to look upon rebate-giving as a pleasant indiscretion and observe it in its true light as a sneaking, despicable, and intolerable crime. We shall have to see that the rebate-giver is a far worse enemy of society than the burglar or the pickpocket. We shall have to readjust our standards of morality so that there shall be no condoning of criminality because the criminal is rich, or is in office, or is liked in political circles. We shall have to look upon a criminal as a criminal no matter where we find him. We shall have to change things so that the interstate commerce commission shall no longer print in its annual reports those amazing lists of railroad officers indicted and never punished. We shall have to change our methods so that such men, indicted for rebate-giving, shall not be immune from prosecution and shall not be able to invoke for their protection the mysterious influences of Washington, but shall fare exactly like any other common thieves. Unless we are willing to do this it will be quite useless to talk pleasant platitudes about keeping the country's highways open to all upon equal terms. The officers of our great railroads are very charming gentlemen, good fellows, of much personal worth; I cheerfully bear witness to their ability and efficiency. Many of them ought to be in the penitentiary, and until we have them there we shall see no cessation of the practices that build trusts.

"In the next place, we shall have to deal very

frankly with the subject of campaign subscriptions and so arrange matters that however noble, salutary, and desirable for the saving of society the cause at stake may be, gentlemen that give to campaign funds will be in a position before the law no whit different from persons that give not. For so long as we continue the present system of exchanging immunity for campaign funds we may as well save ourselves the trouble of passing legislation; the trust gentlemen can nullify it, whatever it may be. When we learn of this species of blackmail between the police and a low, wretched dive-keeper we are properly shocked and horrified. We shall have to be just as much shocked and horrified when we hear of it between a great corporation and a political party. For the principle involved in the one case is exactly the principle involved in the other. The only difference is that the blackmail paid by the corporation does about one million times as much harm as the blackmail paid by the dive-keeper.

"For the only cure that will cure, then, we come back to the basic feeling of the country. When that recognizes the trust question as paramount to all others, when it places the suppressing of the trusts above all other consideration, above personal aggrandizement and above party, and when it will not tolerate in office any man that for any reason whatever makes terms with law-breakers, the whole thing is solved. Some day, for the fear of public feeling, no politician will dare to bargain immunity for campaign subscriptions, no newspapers will dare to distort facts for the sake of trust advertising, no railroad officer will dare to grant rebates and face the community in which he lives, no prosecuting attorney will let the statutes lie inert and unenforced. Because in that day we shall see very clearly the issue we confront:

The life of the trusts or the life of the republic—which?