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THE TOTAL SOLAR ECLIPSE.

The solar eclipse of the 17th of May was successfully observed by English, French, and Italian parties at Soham, a village in Lower Egypt, on the Nile. The duration of totality at that point was only seventy-two seconds, but the observers did prompt and efficient work in this short space of time. The telegraph swiftly bore the record of their labors to our Western World, and the first fruits include the view of a comet near the sun, indications of a lunar atmosphere, and a photograph of the spectrum of the corona.

The precious seconds when the sun's face was hidden by the moon's dark shadow revealed in the first place a comet near the sun. It could not be Comet α or Comet Wells, for this much talked of visitor to northern skies does not reach perihelion until the 10th of June, and has, therefore, three weeks' time in which to speed its course to the near neighborhood of the great luminary. It will be comforting to those who have borrowed trouble from its close approach to the solar fires to know that another comet, eluding the grasp of terrestrial observers, is safely circling around the magnet of the system without let or hindrance. It has not thus far fallen into the sun to add fuel to his flames and bring destruction to the earth. It will doubtless keep on its harmless course and pass with quickened step beyond solar bounds to star-depths unfathomable, as myriad other comets have done before and will do again, for observation confirms the theory that space is full of comets, meteors, and intangible forms of matter. A small portion of the mighty army becomes visible in the form of comets and meteors, but the invisible denizens of space far exceed those that are visible. For every comet that spans the sky with its gossamer tail millions pass over our heads unseen. For every meteor that falls upon our world millions of millions fall upon other worlds, while vain would be the effort to form any idea of the infinite numbers of those that fall upon our sun, or the countless suns of space. The comet seen near the darkened sun has been photographed, and the picture of the daring intruder in solar domains will form a study of attractive interest.

The second item coming from the eclipse observers is more astounding than the first, for the darkening of the lines of the spectrum, as seen by the French astronomers, gives indication of a lunar atmosphere. If this observation is substantiated there will be a revolution in existing ideas concerning lunar physics. Our nearest celestial neighbor, the moon, at least the side turned toward the earth, has for a long time been considered the abode of desolation, her purpose in the material economy accomplished, a dead world, a symbol of the fate in reserve for the earth in the slow revolution of ages. Years ago an observer detected a rosy cloud floating over the lunar crater Linnæus, but the phenomenon was looked upon by more staid astronomers as a flight of fancy. A few years ago an observer in one of the Western States detected a change of form and an appearance of volcanic action around one of the moon craters, but the scientific world in general considered it an optical illusion. It may be that these observers were not so far out of the way, though the startling discovery will not be accepted without strong proof to verify it. Those who are best acquainted with the moon as seen in the telescope will be slow to believe in the slightest manifestation of life on her chaotic surface.

One more meager item closes the first bulletin from the eclipse expeditions. It is that the spectrum of the corona was photographed for the first time. We may, therefore, hope for increased knowledge of the constitution of the sun's magnificent appendage, seen only in a total eclipse, so grandly beautiful as to make the beholder feel like veiling his eyes in the celestial presence. The corona, with its silvery light, its spreading wings, its circles, arches, and curves stretching out into fathomless depths around the darkened sun, is considered as one of the most impressive and awe-inspiring sights in which celestial majesty and grandeur are ever embodied. Its constituents and office in solar economy are problems whose solution is much desired.

The English eclipse expedition, observing at Soham, with Professor Lockyer as the chief director, laid out an organized plan of operations. Some of their points of observation were to note if the abundance and activity of the rosy protuberances gave proof of the present disturbed condition of the sun while passing through its maximum period of sun spots; to compare and detect the difference in the spectra of rosy flames and sun spots; to get an idea of the physics of the solar atmosphere—that is, to find what it looks like, to study—if the expression may be used—its circulatory system; and to determine its chemical nature, especially if the chemical elements existing in the sun are dissociated or separated by the intense temperature existing there. Special attention is now directed to solar physics and chemistry, in consequence of the bold and ingenious theory of Dr. Siemens on the conservation of solar energy.

Photography was greatly relied upon in the solution of these intricate problems, and so much have methods improved in the rapidity with which the image can be impressed on the sensitized plate that seconds will now record more than minutes did twenty years ago. The telescope and the spectroscope combined with the photograph in the attack on the sun's surroundings during the eclipse.

There is every reason to hope for noteworthy results to be obtained from the recent solar eclipse with the best astronomical instruments the world can furnish, and with astronomers of world-wide renown to use them effectually under the cloudless sky and in the serene atmosphere of the station on the Nile. We have still to hear from other stations

on the thin line of totality, and to wait for fuller details and photographs that will tell more of the good news.

Professor Lockyer and his assistants spent three months in hard work to prepare for seventy-two seconds of observation. They traveled thousands of miles and transported thirty cases of instruments to aid them in the work. If their time, talent, and labor have succeeded in drawing a single secret from the sun, or helped to confirm a single theory, the reward is all they ask; they have not labored in vain. For this heaping up of observation upon observation is the work of the present generation of astronomers, the only means of wresting knowledge from our sun, our brother planets, and the suns that people space.

INSATIATE VAMPIRES IN MICHIGAN.

It is a fortunate circumstance that Mr. Burrows did not content himself with denouncing in general terms, in his peculiarly forceful style, "the bands of patent right inquisitors which infest the country and plunder the people." He was so good as to give examples of their outrages, "samples of the persecutions to which farmers are subjected," thereby making it possible for people who use words with some regard for their meaning to form an idea of the nature and behavior of those "insatiate vampires" who are "hunting down" the farmers of the great West. Otherwise it would not be possible to believe that any portion of the American people would "frequently submit," as Mr. Burrows says his constituents do, "to outrageous exactions under the threat of judicial inquisition," or to "unjust persecutions," or to being "plundered without stint or mercy."

Mr. Burrows recited twenty-eight "well authenticated instances of outrages" upon people of his district and State. About half of these involved the collection of a royalty of \$100 for the use of the Birdsall clover huller, "valued at \$450." The case of Joseph Dean, of Colon, is described as one of peculiar hardship. Dean bought a clover huller; "after using the machine long enough to earn \$40, his arm was caught in the machinery and he was crippled for life." In view of this misfortune the insatiate vampire who came to collect the royalty discounted Dean's liability 50 per cent; but the poor man was "plundered" of \$50 nevertheless. This is by far the worst of the "outrages" reported.

Mr. J. M. Failling refused to pay the royalty demanded for using a huller; was sued for it; "and learned at a cost of \$417 that the United States District Court of the Eastern District of Michigan knew more of the value of the patent than he did." Another man, name not given, suffered a still greater "outrage." He too refused to pay the \$100 royalty demanded, and at the end of a suit "found that his education in patent law had cost him \$500."

It would seem to be a specially annoying feature of these "outrages" that the United States Courts are in substantial collusion with the persecutors and sustain their iniquitous demands.

Another remarkable feature of these cases is the curious fascination which clover hulling machines seem to have upon the minds of Mr. Burrows' constituents. They will use them even at the risk of having to pay royalty therefor to the "vampires" who own the patents. How can we account for such infatuation? Can it be, as has been suggested, because the hullers are profitable things to have?

There seem to be several varieties of these fascinating clover hullers, for several of different makes serve as the basis of "well authenticated outrages." In some cases royalties as high as \$125 have been demanded for their use; and those who have resisted the "unjust exaction" have had to pay it in the end, with heavy court expenses added.

Other cases of "outrage" were based on claims of royalty for the use of a circular saw guide, a sawmill dog with attachments, and other trifles, not exceeding \$75 in value. In all but one of these the royalty of \$50 was paid without litigation. Mr. Fred. Spicer carried his case to court and had to pay \$91.50 with costs.

It is a notable circumstance that in every one of the cases litigated—save one which is still pending—the courts sustained the patentees, and the innocent victims of judicial inquisition fared worse than those who settled at once with the vampires; from which circumstance Mr. Burrows would apparently have it understood that Congress only can shield the people from the plundering raids of patent right inquisitors. There is no hope of relief from the courts.

In the course of his speech Mr. Burrows laid special stress upon the necessity of freeing from "persecution" the purchasers in good faith, not only of clover hullers but of patent fence gates, barbed wire fence, drive-wells, "and a hundred other articles necessary to the farmers of the great West;" but none of these figure in his list of "well authenticated outrages." No doubt many farmers would like to enjoy the free use of these patented inventions; but the men who have devised and developed them are not easily persuaded that it is wrong for them to expect a portion of the profit resulting from their use. It is a curious way to encourage invention to enact that when an invention proves to be of great utility—a public "necessity"—the people benefited by it can demand and obtain its legal confiscation without recompense to the inventor; and that is substantially what Mr. Burrows and the rest demand.

LEGISLATIVE CONFISCATION.

In the House of Representatives, April 28, Mr. Caswell asked consent to report from the Committee of Patents, as a substitute for House bill No. 784, a bill (H. R., No. 6018), providing that no action for damages or proceeding in equity shall be sustained, nor shall the party be held liable under