

electric eel, of the Orinoco; and the malapterurus or thunderer-fish, of the Nile. Interesting facts concerning the electric organ have been lately brought to light. This most remarkable of all batteries, whose results are said to be more economically obtained than any yet reached by man, acts only at the will of the animal, which also controls its intensity, and the discharge seems to depend upon some chemical process in the plate where the electric nerve filaments end. In the full-grown gymnotus, whose shocks may stun a man, the voltage is probably between 300 and 800. A curious feature of the batteries is that they are without insulation. The discharge, which does not effect the fish itself, is used for protection and for securing food.

The readiness with which bacteria may be conveyed to wells in subsurface water has been shown in some experiments made on the Rhine near Strasburg by Prof. E. Pfuhl. Two kinds of bacteria, neither occurring in the Rhine, were placed in a shallow pit nearly full of water, and in one hour one species had passed through 24 feet of gravel to a second pit, the other species appearing in the second pit within two hours.

An epidemic in an ant colony has been noticed by a Bombay bacteriologist, who suspects the disease may be the bubonic plague, and is experimenting to settle the question.

Not the least interesting of the phenomena now being studied by astronomers is the little observed Gegenschein, or counter glow, a faint light 20 or 25 degrees in diameter, that is seen by the naked eye only in the zodiac and always exactly opposite—or 180 degrees from—the sun. It bears some resemblance to the brighter and more familiar zodiacal light. Dr. E. E. Barnard has noticed, in fact, that late in the season the two appearances become joined by a band of light 3 or 4 degrees wide, although this is not visible when the Gegenschein first appears in autumn. The cause of the weird glow in the blackness of night is, like that of the zodiacal light, a mystery. One astronomer suggests that the phenomenon is due, like the luminous redness of the eclipsed moon, to the refraction by the earth's atmosphere of sunlight, which is made to converge in the shadow of the earth and is reflected—in the one case by the moon and in the other by the cosmic dust that is believed to be distributed throughout the ether. Spectroscopic evidence tends to prove that the conical zodiacal light—which is seen in the west after sunset in autumn and winter and in the east before sunrise in spring—is sunlight reflected from a ring of solid particles accompanying the earth.

The production of any desired variety of cheese by the introduction of the appropriate microbes is gradually becoming understood. The microbes flavoring the various cheeses have been isolated and cultivated by Dr. Olav Johan Olsen, of Norway, and by adding these cultures to cheese in a store-room carefully guarded against foreign microbes, he has been able to produce the varieties from which he started. There are but few kinds of the microbes, but they may be combined in different proportions. The art has been sufficiently developed to be carried on commercially.

From recent calculations it appears that a point on Jupiter's equator may have three total eclipses of the sun in one day, the middle one lasting 41 minutes, and each of the others 21

minutes. Near latitude 17 degrees the three eclipses meet without overlapping, those of morning and afternoon lasting 43 minutes. For a certain period the dweller on Jupiter, whose rotation occupies less than 10 hours, may find his view of the sun almost wholly cut off by night and eclipses.

HOBSON IS FREE.

Off Juragua, July 6, evening.—By the Associated Press dispatch boat to Port Antonio, Jamaica, July 7.—[Copyright, 1898, by the Associated Press.]—Via Kingston, Ja., July 7, 7:30 a. m.—Asst. Naval Constructor Richmond P. Hobson of the flagship New York and the seven seamen who with him sailed the collier Merrimac into the channel of the harbor of Santiago de Cuba on July 3rd last, and sunk her there, were surrendered by the Spanish military authorities in exchange for prisoners captured by the American forces. Hobson and his men were escorted through the American lines by Captain Chadwick of the New York, who was awaiting them. Every step of their journey was marked by the wildest demonstrations on the part of the American soldiers, who threw aside all semblance of order, scrambled out of the entrenchments, knocked over the tent guys and other camp paraphernalia in their eagerness to see the returning heroes and sent up cheer after cheer for the men who had passed safely through the jaws of death to serve their country.

The same scenes of enthusiasm were repeated upon the arrival of the men at the hospital station and at our base at Juragua. Hobson, who reached there in advance of his companions, was taken on board the New York immediately. The flagship's deck was lined with officers and men and as Hobson clambered up her side and stepped on board his vessel the harbor rang with the shouts and cheers of his comrades which were re-echoed by the crews of a dozen transports lying near by.

Hobson had little to say in regard to his experiences except that he and his companions had been well treated by the Spaniards and that they were all in excellent health. The Spanish authorities consented this morning to exchange Hobson and his men and a truce was established for the purpose. The place selected for the exchange was under a tree between the American and Spanish lines two-thirds of a mile beyond the entrenchments occupied by Col. Wood's rough riders, near Gen. Wheeler's headquarters and in the center of the American line.

The American prisoners left the Reina Mercedes hospital on the outskirts of Santiago de Cuba, where they had been confined, at 2:45 this afternoon in charge of Major Iries, a Spanish staff officer who speaks English perfectly. The prisoners were conducted to the meeting place on foot, but were not blindfolded.

Col. John Jacob Astor and Lieut. Milloy, accompanied by interpreter Maestro, were in charge of the Spanish prisoners. These consisted of Lieut. Amelio Volez, and Aurelius, a German belonging to the Twenty-ninth regular infantry, who were captured at El Caney on Friday last, and Lieutenant Adolph Aries, of the first provisional regiment of Barcelona, one of the most aristocratic military organizations of the Spanish army, and fourteen non-commissioned officers and a private. Lieut. Aries and a number of men were wounded in the fight at El Caney. The Spanish prisoners were taken through the American lines mounted and blindfolded. The meeting between Col. Astor and Major Iries was extremely courteous but very formal, and no attempt was made by either of them to

discuss anything but the matter in hand.

Major Iries was given his choice of three lieutenants in exchange for Hobson and was also informed that he could have all of the fourteen men in exchange for the American sailors. The Spanish officer selected Lieutenant Aries, and the two other Spanish officers were conducted back to Juragua. It was then not later than 4 o'clock, and just as everything was finished and the two parties were separating, Iries turned and said courteously enough, but in a tone which indicated considerable defiance and gave his hearers the impression that he desired hostilities to be renewed at once, "Our understanding is, gentlemen, that this truce comes to an end at 5 o'clock."

Col. Astor looked at his watch, bowed to the Spanish officer without making a reply, and then started back slowly to the American lines with Hobson and his companions.

The meeting of the two parties and the exchange of prisoners had taken place in full view of both the American and Spanish soldiers who were entrenched near the meeting place, and the keenest interest was taken in the episode.

AWFUL OCEAN DISASTER.

Halifax, N. S., July 6.—The British iron ship *Cromartyshire* was towed in here this morning by the Allan liner *Grecian* with her bow torn away by a collision, sixty miles south of Sable Island, with the French steamer *La Bourgogne*. The latter vessel went down ten minutes later. Of the 611 passengers and crew [one report says 833] on board *La Bourgogne*, only 200 were saved. One woman was saved by her husband.

The captain and other deck officers went down with the ship. The *Cromartyshire* laid to and picked up the 200 passengers and seamen who were rescued, transporting them to the *Grecian*, which came along shortly afterwards. The log of the *Cromartyshire* signed by Captain Henderson is as follows:

"On July 4th, at 5 a. m., dense fog, position of ship sixty miles south of Sable Island, ship by wind on the port tack heading about W.N.W., though under reduced canvas, going about four or five knots per hour. Our foghorn was being kept going regularly every minute. At that time heard a steamer's whistle on our weather side, or port beam, which seemed to be nearing very fast. We blew the horn and were answered by steamer's whistle, when all of a sudden she loomed through the fog on our port bow and crashed into us, going at a terrific speed. Our fore top mast and main top and gallant mast came down, bringing with it yards and everything attached. I immediately ordered the boats out and went to examine the damage. I found that our boats were completely cut off and the plates twisted. Other ships disappeared through the fog. However, our ship was floating on her collision bulkhead, so there seemed no immediate danger of her sinking.

"We set to work immediately to clear the wreckage and also ship our starboard anchor, which was hanging over the starboard bow and in danger of punching holes in the bow. I heard a steamer blowing her whistle on coming back, and we answered with our fog horn. The steamer then threw up a rocket and fired a shot. We also threw up some rockets and fired several shots, but we neither saw nor heard anything. Shortly after or about 5:30 the fog lifted somewhat and we saw two boats pulling toward us with the French flag flying. We signalled them