

SCIENCE

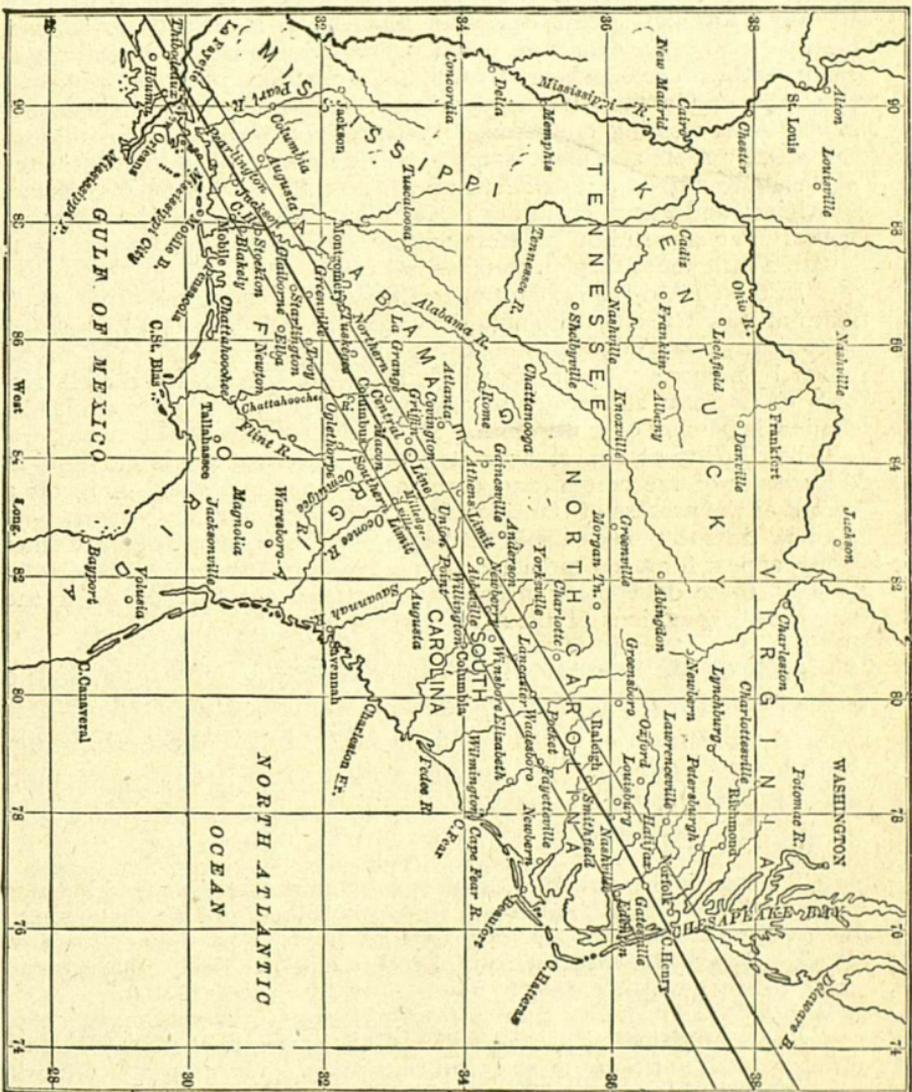
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Total Solar **Eclipse** of May 28. — On the morning of May 28 occurs the first total solar **eclipse** visible in our Atlantic states since 1869.

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Courtesy of *Literary Digest*, New York.
 PATH OF THE TOTAL SOLAR ECLIPSE OF MAY 28, 1900.



Göteborg & Co., Engström & Co., J.

The moon's shadow, gradually increasing in width—with consequently increasing duration of the **eclipse**—strikes the earth at sunrise off the Pacific coast of Mexico. Its central line crosses that country, entering Texas at about 100 miles from the mouth of the Rio Grande; traverses in a northeasterly direction a corner of that state; crosses the Gulf, reënters United States territory at a point southwest of New Orleans, La.; and thence traverses Louisiana, Mississippi, Alabama, Georgia, South Carolina, and North Carolina; crosses a corner of Virginia, leaving the coast near Norfolk. The middle point of the **eclipse** (at noon) lies in the Atlantic, about 300 miles southeast of Newfoundland. After crossing the ocean, the shadow reaches the coast of Portugal about 3 P. M., at a point some 25 miles south of Oporto, crosses the peninsula to a point a little south of Alicante, jumps the Mediterranean to Algiers, and moves on through Northern Africa, until it finally leaves the earth, at sunset, not far from ancient Thebes, having traveled over a path a little more than 7,000 miles in length.

In the United States, the track of the **eclipse** varies in width from 48 miles at New Orleans, to 56 miles in Virginia, and its duration varies from 72 to nearly 100 seconds at the same points. Photographs of the corona taken by numerous observers, will, it is hoped, give most valuable records of its form and structure, and of changes taking place while the shadow is passing over the earth. From photographs of spectra, efforts will be made to determine accurately the position of the bright lines in the spectra of the corona and chromoscope, and especially to secure a record of the process of transition from the ordinary solar spectrum with its dark lines to the so-called "flash-spectrum" of countless bright lines which appear for a few moments at the beginning and end of the total phase—these data being necessary to extend our knowledge of the nature and conditions of the solar atmosphere.

Langen Mono-rail Hanging Railway.—A remarkable achievement of engineering skill—named after its designer, Eugene Langen—is the single-rail, double-tracked, hanging electric railroad now being built to run between Barmen and Elberfeld, Prussia, along the valley of the Wupper river, a distance of 8.3 miles, with 18 stations.

The iron framework over the river is supported by A-shaped buttress piers of iron work; but in the public highways the structure is supported by inverted U-frames. The cars, each carrying 50 passengers, are suspended on two two-wheel trucks 26.2 feet in length. Each truck has two axles, between which an electromotor of 36-horse power, at 500 volts, is arranged. The frame surrounds the rail carrier in such a manner that the wheels cannot rise from the rails and the cars cannot slip off in case a fitting breaks or there is some other mishap. The current is fed by a contact shoe from a rail. The speed will be regulated in the same manner as in electric street cars. The traveling speed is supposed to be 25 miles per hour. The cost of construction including the foundations and stations is estimated at \$200,000 to \$250,000 a mile.

All other so-called "mono-rail" systems—the Meigs, the Lartigue, the E. M. Boynton—have required, in addition to the main weight-carrying rail, one or more auxiliary rails for the purpose of steadying the cars and preserving them in the vertical position; while in the Decauville system this duty is performed by laborers or draught animals. The Langen system is of a true single-rail type.

Color Photography.— *The Ives Kromskop.*— Mr. Fred-eric E. Ives has achieved great success in the production of photographs in natural colors, by means of what he calls his “Kromskop” system.

The system comprises two devices— a special camera for making “color records,” and an optical instrument (the Kromskop) which is used like an ordinary stereoscope.

In the camera are three colored glass screens, red, blue, and green, through which, by an ingenious arrangement of prisms, the light from the object to be photographed is passed, thus making at one exposure three images of the color record identical in size and perspective. From the triple negative any number of positive color records, “kromograms,” can be produced by contact printing; and, when mounted on a folding cardboard frame, they are ready for viewing in the Kromskop. In this, by an ingenious arrangement of colored glass screens and reflectors, the images of the color records are blended into one composite picture. The color record transparencies simply shade or cut out certain portions of color, causing red or blue to predominate, as the case may be, and thereby in their various gradations cause a harmonious and pleasing intermingling of colors, photographically recorded, which reproduces an image in the natural colors of nature.

The Orograph.— This name has been given to an automatic device for recording a profile of any road or stretch of country over which a survey or reconnoitering party is passing. In this important part of the surveyor’s or engineer’s work, it takes the place of the chain and level.

Electrical Treatment of Consumption.— In St. Luke’s Hospital, New York City, is being tested a method of treatment of consumptives, devised by Francisque Crôte, a Frenchman.

Antiseptic medicines— such as formaldehyde— are driven into the system by means of static electricity, a sponge electrode, saturated with the medicine, being applied externally over the location of the diseased tissue. At the same time other medicaments are inhaled. The use of electricity in this manner is not new; but M. Crôte has made advances in its practical application. He claims that his treatment will cure every case of consumption in the first stages of the disease, 75 per cent in the second stage, and 30 per cent in the third or so-called “hopeless” stage.

An X-Ray Discovery.— Professor F. C. Nipher, of Washington University, St. Louis, has made a discovery which not only may help to solve the problem as to the nature of X-rays, but has valuable practical features.

He has found that when photographic plates are exposed to the light of an ordinary room for a few days, they may still be used for taking X-ray pictures. If while the Crookes tube is acting on the plates they are still exposed to the ordinary light of a room, they develop as positives. The shadows are dark. If they are in a plate-holder when exposed to the X-ray, the pictures are like those formed in the ordinary way, and they are apparently as clearly defined.

The advantage of the method is that the plates may be developed by the light of a lamp. The developer (hydrokinone) being weak and cool, the process may go on for an hour if desired, and all the details may be studied as they appear.

The Autoplate.—A new labor-saving device, doing away with most of the hand labor requisite in stereotyping and reducing the hardships under which employees in that department of the newspaper publishing business have labored for twenty years, is the invention of Henry A. Wise Wood, of New York City, and is in operation for the New York *Herald*.

It is called the "autoplate," and does automatically what formerly required many hands and four-fold the expenditure of time. It produces stereotype plates ready for the press at the rate of four a minute. In the history of the printing trade this invention ranks equally in importance with that of the rotary press in 1860 and the linotype in 1888.