of cloud on a scale of 0 to 10, and the chance in percentages of its occurrence are as follows:

August 8th, 8 P. M.		August 9th, 8 A. M.	
Amount of Cloud.	Chance.	Amount of Cloud.	Chance.
10	45.5	10	45.5
8	13.7	9	9.1
7	4.6	8	4.6
5	4.5	7	9.1
3	9.1	6	4.5
2	4.5	4	4.6
0	18.2	3	4.5
		2	9.1
		0	9.1
	100.1		100.1

"In Vadsö there is a telegraph station, and time signals are to be had from the observatory in Christiania. The latitude and longitude have been determined with all possible accuracy. Sydvaranger lies on the south side of the Varangerfjord and Elvenes is the name of the posting station. Vardo, lying on the north side, is not to ber ecommended, having too often fog or clouded sky. In the interior of Finmarken the sun is lower than at Varangerfjord."

Although the astronomical conditions of low altitude of sun and short totality are not good, yet the meteorological conditions just noted compare favorably with those of stations in Japan, where the eclipse occurs later in the day and totality lasts longer. As a basis of comparison for the chance of clear weather, it may be stated that here at Blue Hill, Mass., near the coast, at 8 A. M. in August the average frequency of cloudy weather (sky 8 to 10 tenths covered) is 50.0 per cent. and the average frequency of clear weather (sky 0 to 2 tenths covered) is 32.3 per cent.

A. LAWRENCE ROTCH.

BLUE HILL METEOROLOGICAL OBSERVATORY, February 20, 1896.

THE RÖNTGEN RAYS.

The following fact regarding the X-rays of Röntgen may be of interest:

I have found that it is possible to obtain a photographic image by these rays using a 'pin-hole camera,' having the aperture pierced in a piece of sheet lead backed with aluminum. The Crookes tube was illuminated by discharges from a Thomson high-frequency coil. The photographs taken in this way show very distinctly the two electrodes, while the glass bulb, which appeared to be brightly illuminated to the eye, is scarcely perceptible. It would appear from this that nearly, if not all, the so-called X-rays proceed directly from the electrodes of the tube and not from the glass where this is acted on by the cathode-rays. It likewise affords further illustration of the rectilinear motion of the X-rays. Experiments are in progress with a broken current and also to study the effect of a magnetic field.

Previous observation had shown that the photographic effects were produced equally whether the cathode rays impinged upon the glass or upon other phosphorescent material (*e. g.*, arragonite) within the tube. It has also been noticed in experiments in this laboratory that the appearance of the tube to the eye affords no criterion of its efficiency in producing the X-rays; tubes showing but little fluorescence of the glass composing them often giving admirable photographic effects, which in some cases are obtainable even from a low-vacuum Geissler tube. But the rays producing photographic effects always appear to produce strong flourescent effects on platino-cyanide of barium, so that the fluorescence of this affords an indication of the photographic efficiency of the radiations emitted from the tube.

RALPH R. LAWRENCE.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, BOSTON, February 26, 1896.

RÖNTGEN RAYS PRESENT IN SUNLIGHT.

IN the course of a series of experiments on the so-called Röntgen or X-rays, the undersigned have secured evidence of the presence of these rays in sunlight, and have been able to reproduce many of the phenomena ascribed to the X-rays, without the use of vacuum tubes or any other source of light or energy than direct sunlight.

Dr. Egbert was led on February 22d to place in a photographer's printing frame, an ordinary sensitive plate (Seed's No. 26), upon which was superimposed a positive lantern slide, and on this a shield of aluminium; which was then exposed to the direct rays of the sun for two hours, and the plate developed, when it was found that the aluminium shield had been transparent