gen positive rays with an accelerating potential of almost a million volts. A generator is now being built which it is hoped will give a potential of seven million volts. An even more interesting part of their work has, however, been carried out on Monte Generoso, in northern Italy. The district is very liable to thunderstorms, and use has been made of the large vertical fields which then occur in the atmosphere. To do this, a collector consisting of a large number of points suitably mounted was suspended in a small valley between two peaks. The whole had to be heavily insulated, as potential differences of more than ten million volts were encountered, and at the same time, as is evident from the photographs of the installation, its construction must have called for considerable mountaineering experience. The exact magnitude of the high potentials which were obtained from the apparatus is not certain, but sparks twenty-five feet in length were measured, and the corresponding potential difference estimated to be eighteen million volts.

Radio Observations during a Solar Eclipse.—In the *New Zealand Journal of Science and Technology* for June, Dr. M. A. F. Barnett gives a summary of the results obtained by the Radio Research Committee in New Zealand during the total solar eclipse of Oct. 21 and 22, 1930, by means of radio observations. As the path of totality passed across the Pacific Ocean, the observing stations near it were necessarily limited. The results agree well with those obtained during other eclipses. Observations were made on long waves (11,500 metres), on medium waves (850 and 800 metres), and on short waves (52 to 16 metres). In most cases the transmission path crossed the line of totality. The signal strength was estimated by aural methods. The strength of the long waves between Rugby and New Zealand was increased during the eclipse period, but nothing definite was obtained from the other long wave observations. On the medium wave transmissions, an effect equivalent to a partial return to night time conditions was observed. With short waves the only eclipse effect observed was a partial return to night time conditions in a few cases of the 52-metre transmission. Test records were made of the strength and persistence of atmospherics during the eclipse, but only in a few cases was a slight increase in their strength observed. It is concluded that in general the effect of the eclipse was to produce a partial return to night-time conditions. The resultant changes in signal strength follow fairly closely the equivalent changes in the amount of solar radiation reaching the atmosphere. There are indications, however, of a slight time-lag between the effects produced and the amount of solar radiation between the transmitter and the receiver.

Astronomical Topics.

Comet Ryves, 1931 *c*.—This comet was first seen by Mr. Ryves at Zaragoza on Aug. 10; he observed it almost daily up to Aug. 17, and noted that it was growing brighter. The only observation of position made elsewhere, so far as we know, was on Aug. 14 by Prof. G. van Biesbroeck, at Yerkes, who saw a tail one degree in length.

A telegram from the U.A.I. Bureau at Copenhagen has circulated the following parabolic orbit, computed by Mr. F. E. Cunningham, which indicates that it approached the sun within seven million miles on Aug. 25; it is quite likely that it would be visible in daylight about the time of perihelion:

T	Aug. 25·900 U.T.	
ω	168° 26′	1931·0
Ω	101 4	
i	169 11	
log q	8·8633	

EPHEMERIS FOR 0 H. U.T.

	R.A.	N. Decl.	log r.	log Δ.
Aug. 27	10h 37m 49s	7° 47′	8·9987	0·0150
,, 31	10 44 22	5 36	9·4339	0·1028
Sept. 4	10 45 56	4 54	9·6070	0·1489
,, 8	10 45 30	4 32	9·7388	0·1895
,, 12	10 46 14	4 13	9·8228	0·2172

It will be seen that the comet remains near the sun in the sky, and observation in a dark sky will not be possible until it has become much fainter. If the above value of the perihelion distance is correct, this comet approached the sun more closely than any other comet observed in the present century, but less closely than the great comets of 1843, 1880, 1882, 1887.

Harvard Card No. 169 gives the following observed position of Nagata's comet by Prof. G. van Biesbroeck at Yerkes Observatory:

		R.A. 1931·0.	N. Decl.	Mag.
Aug. 12	10313 U.T.	12h 17m 57·25s	10° 8′ 18·4″	7·5

He noted that "A sharp nucleus is visible; the round coma is followed by a broad tail visible for 25′ in position angle 110°": as the comet is moving south more slowly than the sun, the conditions for observation are improving slightly.

John Harrison's Third Time-keeper.—The *Observatory* for August contains an article on this interesting old time-piece, on which Harrison was engaged from 1740 until 1757. It has been cleaned and repaired by Commander Gould, and was restarted in March last. All the four time-pieces of Harrison will shortly be in going order; the last to be undertaken is No. 1, on which Commander Gould is now at work. Harrison evidently bestowed more care and thought on No. 3 than on No. 4, which is much smaller. Yet it was the latter that won the Government award of £20,000. No. 3 was the first time-piece that contained a bimetallic compensation; it also anticipated the modern idea of a master clock and a slave one; it consists of an inner clock that is wound every thirty seconds by an outer clock. Being intended for use at sea (though it seems never to have actually been tried there), it is controlled by two large slowly-moving balances, instead of a pendulum. All Harrison's time-pieces will live in history, from the important part they played in solving the ancient problem of finding the longitude at sea.

Another Large Reflector in America.—A Science Service *Bulletin* from Washington, D.C., dated Aug. 10, announces the successful completion of the 69-inch mirror for the Perkins Observatory of Ohio Wesleyan Observatory, Delaware. It is stated to be the first very large mirror made entirely in America; in other cases the glass had been obtained from Europe. The mirror has been figured in the works of J. W. Fecker, at Pittsburgh. The tests of figure are stated to have been satisfactory; nearly 16,000 hours of work have been spent upon it. It has a central aperture, and will be used as a Cassegrain. The mirror is 10·3 inches thick and weighs 3790 pounds.