probability. All results are compatible with the process as described by the theory pertaining to pair creation of Dirac particles in the Coulomb field of a nucleus of finite nuclear size. The theoretical yield for a spin-zero particle[4] is in poorer agreement with the results but is not excluded.

[4] See footnote 10 of reference 2.

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Extraordinary Increase of the Cosmic Radiation on February 23, 1956*

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During the solar flare event of February 23, 1956, the nucleonic intensity increased by an estimated 600% above normal. The ionizing intensities measured with a shielded (20 cm Pb) and an unshielded Geiger counter telescope showed an estimated increase of 38% and 58% above normal at Berkeley. The time of onset occurred in the interval 0345–0400 UT.

AN extraordinary increase in the nucleonic and ionizing components of the cosmic radiation was observed at Berkeley (100 m elevation, 44°N geomagnetic latitude, 38°N latitude, 122°W longitude). Between 0345 and 0400, 23 February 1956, UT, the intensity appeared to rise very rapidly reaching a maximum in this interval and then decreasing approximately exponentially with a decay time of about 40 minutes.

The nucleonic component was observed by using four enriched $B^{10}F$ neutron counters. Each counter is enclosed in the center of a 10 cm×10 cm×100 cm paraffin block. This is surrounded on both sides and the top and bottom with 5 cm lead. This unit is located in the basement of a building, under about 160 gm/cm^2 of concrete. The ionizing components are measured with two Geiger counter telescopes, one without any shielding (total) and the other with 20 cm of lead filter (hard). These are located under a thin roof.

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Preceding this extraordinary increase, there were decreases of about 5% in the nucleonic intensity and 2% in the ionizing intensities. These decreases start about February 9 and are accompanied by disturbances in the earth's magnetic field. There are also variations in intensity following this event which appear to be associated with magnetic disturbances.

Because the registers recorded only the total counts in each 15-minute interval the time of onset and peak amplitude are somewhat uncertain. The character of the disturbance appears to be a quite sudden increase followed by a decrease that can be well represented by an exponential curve with a time constant of 0.7 hour. Extrapolating back the nearly exponential decrease, so that the extra counts over background are accounted for, gives the time of onset and amplitude of the initial burst as follows:

Radiation	Time	Increase
Neutrons	0349 UT	600%
Total mesons	0352 UT	58%
Hard mesons	0353 UT	38%