

By attaching one of these defective kites, with a short line, to the top of a flagpole, an observer has a good opportunity to study the kite from various angles at close range, with a good prospect of detecting the defects in the kite. By using this method at Drexel it has been possible to locate the weakness in the various defective kites, and with the aid of a piece of twine to so brace these kites that they would fly entirely satisfactorily.

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#### SOLAR VARIABILITY.<sup>1</sup>

By C. G. ABBOT and others.

[Author's summary.]

We have repeated at Mount Wilson, in 1913 and 1914, with improved apparatus, the determinations of the distribution of brightness along the solar diameter described in volumes 2 and 3 of the *Annals of the Astrophysical Observatory*. More than 40 days' determinations were secured in 1913 and more than 80 in 1914.

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<sup>1</sup> *Abbot, C. G., Fowlie, F. E., & Aldrich, L. B.* On the distribution of radiation over the sun's disk and new evidences of the solar variability. Washington, 1916. 24 p. pl. 8°. (Smithsonian misc. coll., v. 66, no. 5. Publ. 2412.)

The results agree closely with those obtained at Washington in 1907 for all wave lengths for which a comparison is possible.

There are, however, slight but significant differences between the mean results of different years. Taking 1913 as the standard year, greater contrast of brightness between the sun's center and edge was found in 1907 and 1914 than in 1913. We incline to connect these changes with solar activity, greater contrast prevailing along with greater solar radiation at times of high solar activity.

Besides these long-period changes there appear to be small changes of contrast from day to day, correlated with the changes of the solar radiation heretofore discovered by us. For this type of changes increased contrast is associated with decreased solar radiation.

We are thus led to consider two causes of change existing in the sun. One, going with increased solar activity, we regard to be increased effective solar temperature which naturally produces increased radiation and increased contrast. The other, altering from day to day, we regard to be increased transparency of the outer solar envelopes which naturally produces increased radiation but decreased contrast.

All these changes are greater for shorter wave lengths.