place of observation, and consequently the daily, monthly, and annual amounts, which are such important factors in determining climate, would also be known. From them could be deduced an approximate value of the variations of the radiation of the sun itself.

The Ångström compensating pyrheliometer is the most suitable instrument for such researches. Failing this, any of the instruments, whose trustworthiness has been established by experiment, could be used. In all cases it is of the greatest importance only to work with suitably constructed instruments which have been carefully verified and standardised. As far as possible, a continuous self-recording apparatus and also a direct-reading instrument for controlling the readings of the self-recorder should be used. It would also be highly desirable to experiment with several instruments of different types, at least at some observatories in each country, so as to ensure more efficient control and to make a more complete comparison of the different systems.

If the International Committee will support the requests which we have advanced with their high authority, Meteorology will reap great profit from the developments which will consequently take place in actinometric studies.

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No. 13.

WORK WITH THE SPECTROHELIOGRAPH.

Drawn up by George E. Hale.

(Statement accompanying No. 9.)

Spectroheliographs are now in regular use in India, Germany, France, England, and America. Others will soon be available in Italy, Spain, and probably Mexico. A
plan of co-operation involving the use of instruments so widely distributed in longitude should permit an almost continuous record of the state of the Sun's surface to be obtained.

The moderate dispersion available in the majority of these spectroheliographs will probably cause the record to be confined in most cases to the calcium lines. The minimum daily programme for each station should include one or more photographs:

(1) Of the Sun's disc with the second slit set on H₁ or K₁ at a wave-length to be agreed upon.
(2) Of the disc with the second slit set on H₂ or K₂.
(3) Of the prominences with the second slit set on H₂ or K₂.

It is also desirable, when sufficient dispersion is available, that photographs showing hydrogen flocculi over the entire disc be taken daily.

Special studies, involving comparison of K₁ and K₂ photographs, photography of the disc with various metallic lines, comparison of forms of prominences as photographed with calcium and hydrogen lines, etc., should be undertaken whenever possible, but no plan of co-operation in such work is contemplated at present.

Suggestions regarding co-operation in work with the spectroheliograph are desired from societies, committees, observatories, or individuals interested in the progress of solar research. So far as possible, replies received before August 12th will be printed in full or in abstract, and distributed in time for consideration at the second conference on solar research, which is to be held next autumn. On that occasion a definite programme of co-operative work will be adopted.

Suggestions are particularly desired on the following points:
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(1) Are you prepared to take part in this work?

(2) If so, please describe your apparatus, and state what photographs you are willing to make on each clear day.

(3) At what hours of the day can you work to the best advantage? Could you make photographs at other hours if necessary?

(4) Assuming that the photographs of the disc are to be used (apart from special investigations) mainly to determine the distribution and area of the flocculi, and the rotation period of the Sun at various latitudes, what methods of measurement and reduction do you recommend?

(5) What method of measurement and reduction do you think should be employed in the case of photographs of the prominences?

(6) Do you wish to undertake the work of measurement and reduction yourself, or would you prefer to send the negatives (or those of a duplicate series) to a central bureau for discussion?

(7) If you desire to measure and reduce your own photographs, could you arrange to have the negatives made in duplicate, one set to be sent to a central bureau?

(8) Pending the adoption of a definite programme, what photographs will be made daily at your observatory?

(9) Please add any other remarks you may wish to make regarding the proposed work.

Observations of Sun-spot Spectra.

It is of great importance, especially during the present maximum, that both visual and photographic observations
be made of the lines that are affected in the spectra of Sun-spots. In order to facilitate the preparation of plans for co-operation in this work, you are requested to send replies to the following questions:

1. Are you prepared to co-operate with other observatories in a systematic study of the lines affected in the spectra of Sun-spots?

2. If so, kindly describe the apparatus employed in your work, making certain to include the size of the Sun’s image at the focus of the telescope, and the resolving power of the spectroscope.

3. What region of the spectrum, and approximately how many lines are included in your present programme of observations?

4. What method do you employ for identifying widened lines?

5. Would you be willing to communicate your results to a central bureau for discussion with other similar observations, after having made any desired use of them yourself?

6. If you have no objection to doing so, please state any plans you may have for further observations for spot spectra.

7. Kindly add any suggestions you may be ready to offer, with a view of improving and systematising the observation of spot spectra. Suggestions regarding the feasibility of securing satisfactory records of the spot lines by photographic methods are specially desired.