22. COMMISSION DES ETOILES FILANTES

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During the past four years the most important events in meteoric astronomy have been the good showers of the Leonids in 1930 and 1931. When these observations are added to the predictions based on computations of the perturbations, there is good reason to hope for an even better shower in 1932, perhaps rivalling that of 1866. As to the study of meteors in general, there has been an increasing revival of interest. Meteor Notes are now regular features of many scientific journals. Never before have so many people been working in this branch of science. A very brief outline of such activities follows.

In Great Britain, the Meteor Section of the B.A.A. continues its excellent work both in the general study of meteoric phenomena and in the determination of heights of doubly observed fireballs and meteors. The Computing Section of the B.A.A. worked out the perturbations for the Leonid stream for the return in 1932. Observational work of value has been contributed from South Africa, and even more from New Zealand. There is a little being done in Australia. Interest will probably be stimulated there by the recent discovery of a group of meteor craters, some of them of considerable size.

Hoffmeister in Germany continues his theoretical work, based upon his own observations. From some of these made at sea in the near tropics he confirmed his earlier results as to hyperbolic velocity for the majority of sporadic meteors.

There has been much observational work done in Russia, and several Russian scientists, both at home and abroad, have contributed valuable theoretical articles on the subject.

There has been steady work, by both professionals and amateurs, in Czechoslovakia, Esthonia, and Poland on observational and theoretical lines. Work has been published in Japan, where there are now active observers. Observations have been made in Belgium. There has been some revival of observational work in France, but no reports reach us of work in Italy or Spain.

In America, interest in meteors has greatly increased. Besides the headquarters of the American Meteor Society at the University of Pennsylvania, and the distant regional centres of the Society, Harvard College Observatory acts as a centre for New England, and the University of Iowa for the Middle West. Harvard, in co-operation with Cornell, has a regular meteor observatory, with two stations, in Arizona, which will function for one year at least. It is well equipped and has a full staff, so most important results should be expected from it. Theoretical as well as observational work is being done at all the three universities mentioned. The American Meteor Society doubled its highest previous record by having 29,000 observations of all kinds reported for 1931. The daily press has been of inestimable service in America whenever it was desirable to ask general aid in the observation of meteor showers or in gathering fireball data. A number of good observers are regularly working in Canada and South America, and work on the Leonids has also been done in Mexico.

One of the main purposes of having members from different nations on the various Commissions is to ensure that such members shall report to the presidents the work going on in their respective countries. As several members of this Commission have ignored all communications from the President, the responsibility lies wholly upon their shoulders if work done in their country is insufficiently mentioned in this report.

The following items will be recommended for favourable action at the Cambridge, U.S.A., meeting of the International Astronomical Union.

1. If for nationalistic reasons authors feel obliged to publish in their own languages, it is urged that with every paper an abstract, containing results and enough discussion to make the tabular matter intelligible, be printed in English, French, or German.

2. Co-operation with workers in allied sciences should be cultivated as fully as possible. This should apply especially to those making a study of the structure of meteorites.

3. Observers who meet with good fortune in meteoric photography should at once publish those facts which would be of interest to others.

4. New devices, or improved models of older ones, for determining the velocities of meteors should be tried out, and the results promptly published. Useful experiments might be devised for trial in a Zeiss Planetarium with artificial meteors.

5. Centres for gathering meteoric data, particularly on fireballs, should be formed in every country. It would also be desirable that large collections of photographic plates be examined and the results of this study published in the form of a catalogue of meteor trails.

6. All telescopic observers, particularly those having instruments with large fields of view, are urged to record the telescopic meteors. Standard forms will be furnished for this work, on application.

7. In English, at least, there should be a real effort made to define and unify terms in meteoric astronomy.

8. A new and complete catalogue of meteorites is desirable.

9. Supplements to the von Niessl-Hoffmeister *Catalogue of Fireballs* should appear every five years.

10. It is recommended that no new catalogue of radiants of meteor streams be undertaken in the near future, as it is certain that no agreement could be reached as to its contents.

11. In view of the fact that a recent geophysical survey and two new drill holes give added evidence of the presence of large masses buried under the south wall of Meteor Crater, Arizona; that the area of the great fall in 1908 in Siberia has never been properly studied; that the great mass in the Adrar, North Africa, has not been rediscovered; that the study of these three localities will have immense value for meteoric astronomy; and that data on cosmical dust are needed; it is the fervent hope of the Commission:

(*a*) That work at Meteor Crater, Arizona, shall be pushed far enough to prove definitely how great a mass remains and its present condition.

(*b*) That a fully equipped expedition shall explore the region in Siberia of the great fall of June 30, 1908.

(*c*) That the French Government make every effort to rediscover and study completely the great meteoric mass in the Adrar, North Africa, as long delay may render this almost impossible due to shifting sands.

(*d*) That the stations of the International Polar Year, within the polar zones, and particularly in Greenland and Antarctica, attempt to collect atmospheric dust, as part of their regular programme, and that this be analyzed for cosmic material.

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