

22. COMMISSION DES ÉTOILES FILANTES

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MEMBRES: MM. Chant, Chrétien, M. Davidson, De Roy, Dobson, Emanuelli, Ernst, Fisher, Lebeuf, Pickering.

During the past three years no important event, so far as phenomena are concerned, has taken place in meteoric astronomy. The occurrence of a shower connected with Pons-Winnecke's Comet was hoped for in June, 1927, but resulted in disappointment for most observers. Yet a few persons, some trained in the work and in widely separated localities, reported large numbers of meteors. Some of these reports tend to corroborate that emanating from Japan in 1922 as to the general character of meteors connected with this comet. Even yet it is scarcely possible to give definitive conclusions, the reports have been so slow coming in and rather contradictory in character.

In Russia, for the past few years, the Russian Society of the Amateurs of Knowledge of the Universe has been actively engaged in observing meteors. The total number of observations reported by them seems far to surpass those for similar organizations elsewhere, during the same period. The deduced radiants have been partly published. Also many theoretical papers of importance by Russian astronomers have appeared. Unfortunately for the rest of the scientific world, much of this work is printed in Russian and hence is practically inaccessible.

In Great Britain and its Dominions the Meteor Section of the B.A.A. has continued its most excellent work on meteor showers and the heights and paths of fireballs. Its preliminary results appear in *The Observatory* monthly. Important theoretical papers by several of its members have appeared elsewhere. The theory of the upper atmosphere by Lindemann and Dobson, based upon meteor observations and bringing in their physical theory, has created wide interest and helped to emphasize the importance of the subject.

In Germany, C. Hoffmeister has published his *Katalog der Bestimmungsgrößen für 611 Bahnen Grosser Meteore* which is a work of great value begun by von Niessl and completed and edited by himself. His further contributions to meteoric theory and the real paths of fireballs entitle his work to the highest consideration.

In Czecho-Slovakia, J. Sykora and J. Klepesta have secured some of the most remarkable photographs of meteors on record. Several of these have been published. From most other countries in Europe come isolated reports, but the lack of some international organization like the Bureau Central Météorique is badly felt, there being too few observers in most countries to form a purely local or national society, which will function successfully.

In America, the great collection of plates at Harvard College Observatory is being searched for photographs of meteors and those found (over 350 in number) are being studied by W. J. Fisher. He has also published theoretical papers of importance. A new physical theory of meteors by C. M. Sparrow of the University of Virginia has appeared. The American Meteor Society has grown in membership and in the importance of its work. Results for the period 1919-1925 inclusive are nearly ready for publication. By the co-operation of the A.A.V.S.O. a beginning has been made in the statistical study of telescopic meteors. Data on fireballs are furnished also by the Weather Bureau and Navy Department.

Meteor Notes, appearing monthly in *Popular Astronomy*, give preliminary results of the work. The publication of the reference book *Meteors* by C. P. Olivier brought the history and theory of the subject down to 1925 within the reach of those who did not have access to large scientific libraries.

After the location of the main meteoric or cometary mass at Meteor Crater, Arizona, U.S.A., definite exploration has been begun and a tunnel is being driven toward it. The work is directed by D. M. Barringer, who first proved its impact origin. It is hoped that the mass will be reached by 1929.

In Siberia, the location of the fall of the supposed meteorite of June 30, 1908, has been visited and studied briefly by L. A. Kulik. The whole affected area was 20 to 30 km. in diameter. While no meteoric mass was located, the ground being swampy, yet numerous "shell-holes" or craters were found over a very large area. These were from two to several tens of metres in diameter. The accounts of the phenomenon, given by eye-witnesses, prove it to be unique in scientific annals. Complete investigation of the locality and search for fragments certainly should be made at once.

The following members of the Commission aided by advice, criticism, or suggestion in the preparation of this report: Chant, M. Davidson, De Roy, Dobson, Fisher, Pickering.

The following items will be recommended for favourable action at the Leiden meeting in 1928 of the International Astronomical Union.

(1) To compile a new catalogue of radiants of meteor showers, based however only upon reliable observations.

(2) To obtain the co-operation for the study of telescopic meteors of variable star observers and comet hunters.

(3) To continue the study of meteors by photography in three ways: (a) actually to photograph a few of the brightest annual showers, (b) to urge the systematic examination of large existing collections of plates for meteor trails and to study those found, (c) to experiment further as to what are the best lenses and plates for such work.

(4) To study the possible accuracy of naked-eye observations in two ways: (a) by two observers side by side plotting independently the same objects, (b) by three observers, in three different stations, observing simultaneously the same absolute region of the atmosphere for meteors.

(5) To seek to co-operate with meteorologists (a) by a study of persistent trains, (b) by collecting data which will be the basis for such studies as those by Lindemann and Dobson.

(6) To undertake the organization or revival of national or international groups for the observation of meteors; the Bureau Central Météorique, for example, should be revived.

(7) To make further experiments with various mechanical devices to secure greater accuracy in naked-eye work.

(8) To urge that some observatory (or some well-known amateur), in each country, consent to act as a central bureau to which records of meteoric phenomena may be sent and kept on record.

(9) To seek to impress upon the casual meteor observer what are the important things to be noted when a brilliant object is seen.

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