

6. ASTRONOMICAL TELEGRAMS (TÉLÉGRAMMES ASTRONOMIQUES)

(Committee of the Executive Committee)

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INTRODUCTION

The operation of the Central Bureau for Astronomical Telegrams, thanks to the diligence of its Director and his collaborators, has continued to remain relatively tranquil and quite effective since January 1968, following the methodology established by the previous Director, Dr Owen J. Gingerich. Financial problems, temporarily at least, seem not to be of major concern. The effective subsidy by the Smithsonian Astrophysical Observatory has been reduced almost to a tolerable level. Policy with regard to the content of the *Circulars*, however, deserves continuing surveillance by the subscribers.

F. L. WHIPPLE

President of the Commission

REPORT OF THE CENTRAL BUREAU FOR ASTRONOMICAL TELEGRAMS

As anticipated in the last report, there was an increase in the activity in the Central Bureau during 1967 because of the unprecedented number of periodic comets predicted to return: ten of the 17 were in fact recovered, and with four new comets discovered, as well as one located on plates taken in 1963, the total number of comets announced was a record. During 1968 the activity in the Bureau was greater still, for as many as seven *new* comets were discovered, and 21 supernovae were announced by the Bureau. In both years the British amateur G. E. D. Alcock succeeded in discovering a naked-eye nova, and in each case rapid announcement made it possible for spectroscopic observations to be secured before the nova reached its maximum. The Bureau also helped disseminate the first post-conjunction observations of Icarus in 1968, enabling last-minute orbit corrections to be made and ensuring the success of the radar experiments conducted when the planet passed by the earth three days later. Just half of the first 26 pulsars to be discovered were first reported on the Bureau's *Circulars*, while the startling news of the optical identification of the Crab pulsar NP 0532 was originally transmitted by telegram on 17 January 1969. Several notes appeared on the *Circulars* during the ensuing months as information was obtained about X-radiation from the pulsar as well as changes in the period. Although the Bureau's activity in 1969 was at a lower level than in 1968, it remained significantly higher than in 1967.

It is debatable whether the Bureau should be involved in distributing information about pulsars, or indeed any topic where scientists wish merely to establish priority for some particular observation, as opposed to reporting news about some transient celestial object that needs to be observed as quickly as possible. Other media are certainly available for reporting pulsar news, even when spectacular discoveries are being made every week. For a similar reason some subscribers may object to the appearance of extensive predicted ephemerides (often calculated long in advance) for faint periodic comets, or for positional observations of new comets long after they are required for providing satisfactory ephemerides. Ever since the IAU was established there has been an "informal agreement" with Commission 20 for publishing ephemerides and positional observations

on the IAU *Circulars*, however, and in the absence of any more suitable medium (with the possible exception, in the case of the ephemerides, of the *Handbook of the British Astronomical Association*), this practice will be continued. An effort is made to ensure that reliable ephemerides are available on the *Circulars* for all comets, new and periodic, that might be observable at any particular time.

The number of "telegram books" and the number of occasions on which *Circulars* have been issued during the triennium were as follows:

	Telegrams	<i>Circulars</i>
1967	28	42 (Nos. 1987–2045)
1968	58	59 (Nos. 2046–2123)
1969	42	51 (Nos. 2124–2196)

The total number of subscribers to the *Circulars* is now approximately 750. When a subscription is shortly to expire, an invoice is generally prepared by the computer at the time a batch of *Circulars* is addressed, and it is necessary to repeat here that *failure to renew promptly automatically results in interruption of service*. Following the suggestion made at the Prague meeting, we investigated the possibility of billing subscribers on a yearly basis, rather than for a fixed number of *Circulars*. There is a distinct possibility that by the time this report is published the billing system will have been changed over to a yearly basis.

The Communications department of the Smithsonian Astrophysical Observatory has been of tremendous assistance in both the receipt and transmission of telegrams. Subscribers in North America, more than 30 for some categories of messages, receive telegrams collect. Most of the European distribution, involving up to 70 subscribers, continues to be handled very dependably via Dr P. Simon at Meudon, although we have found it more efficient to send the messages to him directly by telex, rather than over the AGIWARN network. Further distribution takes place from Stockholm and Prague. As before, deposits for these European subscribers are collected in Cambridge, and it is gratifying to note that since 1967 everyone has been most cooperative in this matter. Astronomers in The Netherlands, the U.S.S.R., and Australia and New Zealand are served via the AGIWARN network – operating since June 1968 from the Environmental Science Services Administration in Boulder, Colorado. The messages are sent directly from the Smithsonian over U.S. government lines for distribution in Chile, Argentina and Japan. Until recently this arrangement existed also for South Africa, but it has now become necessary for the messages to be sent there by commercial cable. It has been difficult to find a rapid yet inexpensive way of sending messages to Brazil, but we have recently been able to set up a route via the Johns Hopkins University and their TRANET station in São José dos Campos.

Not all of the activity of the Central Bureau comes to the notice of subscribers to telegrams and *Circulars*. Before and at the time of the close approach of Icarus to the earth the Bureau received letters, telegrams and telephone calls from the popular press and a frightened public; but it was encouraging to note that Geographos passed by a year later without a single communication of this type. The Bureau receives a considerable number of reports of suspected comets, particularly when the press has given publicity to some successful comet hunter. Many of these reports can be quickly dismissed, but for the more plausible ones we request confirmations from some of the Smithsonian's tracking stations. Sometimes we ask instead interested amateur astronomers in North America: this has proven to be a particularly rapid and reliable way of securing confirmations, and we are most grateful to those who have participated in this so-often unrewarding business.

The increased rates for *Circulars*, introduced in December 1967, have improved the financial situation of the Central Bureau, although the effect was somewhat offset by the reduction in the IAU subvention. The Smithsonian Astrophysical Observatory continues to subsidize the operation of the Bureau in the form of personnel, but provided that the IAU subvention is not reduced below the present amount of \$ 533 per year, it may be possible for us to operate for the next triennium without a further increase in the rates for the *Circulars*.

B. G. MARSDEN
Director of the Bureau

APPENDIX

The following changes have been made in the code for astronomical telegrams (see *Trans. IAU*, XIIC, pp. 34–38, XIII A, pp. lxxxii–lxxxiii):

1. The letter X, used for a suppressed digit, has been replaced by a hyphen (-). It counts as zero in checksums.

2. In messages giving ephemerides, the letter D has been replaced by the figure 9 and the letter R by the figure 8. This change causes no ambiguity, but it should be noted that these figures must be included in the checksum.

3. Following the usual checksum, there is an additional checksum, formed in the normal manner, but by adding *only* the groups containing right ascension, declination and magnitude information. Dates, daily motions, differential offsets, and geocentric and heliocentric distances are *not* included in this. When orbital elements are being transmitted, the second checksum is limited to the groups giving the angular elements ω , Ω and i .

Examples (for transcriptions see *Circulars* Nos. 2156 and 2079):

Old: KOHOUTEK 1969B COMET KOHOUTEK 19501 90724 0013X 19446 22648 X1148 10182
20010 83789 BERGEDORF

New: KOHOUTEK 1969B COMET KOHOUTEK 19501 90724 0013- 19446 22648 -1148 10182
20010 83789 43242 BERGEDORF

Old: 1968B COMET MILBOURN 19504 80623 15205 22016 D0399 R1267 15215 22320 15226
22554 D0468 R1282 15238 22804 15251 22955 D0539 R1299 15264 23129 80703 13261
CANDY

New: 1968B COMET MILBOURN 19504 80623 15205 22016 90399 81267 15215 22320 15226
22554 90468 81282 15238 22804 15251 22955 90539 81299 15264 23129 80703 23261 27177
CANDY