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Catalogue of binary stars for which orbits have been computed.

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Introduction.

During the last years astronomers working on problems concerning double stars have felt the lack of a list of the elements of the orbits of the binary stars. The question of establishing such a catalogue was already discussed at the meeting of I. A. U. at Rome in 1922. At the meeting of 1925 at Cambridge the double star committee also judged it of use to get such a list, therefore Mr. *Luplau Janssen* was very glad to be able to inform the committee, that the work had already been done here at the Urania Observatory. Since the meeting at Cambridge the catalogue has been revised and supplemented and a manuscript for the printer has been prepared. All the members of the staff of the Urania Observatory have taken part in this work.

The catalogue gives the elements of double star orbits, which we have been able to find by means of the rather incomplete materials available in Denmark. Many orbits, only known from references, have been copied by Mr. *Luplau Janssen* on his visits in foreign countries. In many cases we are highly indebted to our colleagues abroad, who have been so kind as to copy many systems of elements for us. Especially we tender our best gratitudes to Dr. *J. Jackson* (Greenwich), Professor *R. Prager* (Neubabelsberg), Dr. *J. Dick* (Berlin), Mr. *G. Bigourdan* (Paris), Professor *G. Abetti* (Firenze), Professor *José Comas Solá* (Barcelona) and to Professor *T. J. J. See*. Further we thank Professor *Robert G. Aitken* for valuable hints and Dr. *van den Bos* and Dr. *G. Van Biesbroeck* for unpublished orbits. We are also much indebted to Mrs. *E. Luplau Janssen*, who has copied many orbits for us here. We also wish to express our best thanks to »Rask-Örsted Fondet« for financial aid.

No complete list of orbits of binary systems has been published later than that of *Gore* in 1890 (Proceedings of the Royal Irish Academy, 3. ser., Vol. I), *Burnham*'s General catalogue only contains references and some later lists only give the elements from the last derived system and in most cases only the elements of the best known binary stars. Here we give a list of all determinations and we have endeavoured to make it as complete as possible. Some orbits may have escaped us, and in some cases, when the original source has been inaccessible to us, we cannot warrant absolute correctness. We hope that our list may prove to be usefull to all workers on double star astronomy, in spite of possible lacks in the material given here. When we have proceeded to establish such extensive list, we state the causes thereof as follows. If we had choosed to give only the best elements, the choice would have been very difficult in many cases, and if in such cases a number of determinations ought to be quoted, it would be very difficult to find a correct limit; then all systems had to be given. It is very often told, that many systems of elements now a day only possess an historical value. From a theoretical point of view, this may be quite true. From a practical point of view the elder determinations possess a certain value as illustrating the varying difficulties to overcome in the special cases. Further they yield together with the modern determinations a good judgment of the real value of the later ones. If all determinations agree we may generally be sure to know the elements very well. If the determinations are different to a great extent, further researches on the system in question are needed. Therefore we have thought it better to give all elements within our reach.

The catalogue itself needs very few commentaries. We give the names of the star, the approximate position (1900), the magnitudes of the components (mainly from the Draper Catalogue), the spectrum, direction of orbital motion (d direct, r retrograde), the elements. Further we give the approximate extension of ephemerides, authority and the necessary references. P and T are given with all the decimal places found in the original publication (when available). All the other elements are only given with two decimal places which will be sufficient for all practical purposes.

Some statistical remarks will be of interest. The total number of orbits is 771, referring to 139 binary systems. The number of computers is 123. The distribution is as following: