

from  $\lambda$  434 to  $\lambda$  487. A spectrum of the Nova obtained on February 17, 1903, does not agree with the spectrum of the nebulosity at all.

Prof. Perrine arrives at the conclusion, from the evidence given by these spectrographs, that the results do not oppose the theory that the light of the nebulosity—as considered in that part of it called condensation D—is due to the reflection of the light emitted by the Nova at the time of its greatest brightness, although, in face of the contradictory evidence already published, he does not consider his conclusions strong enough to prove the reflection theory (Lick Observatory Bulletin, No. 33).

### STELLAR PARALLAX.<sup>1</sup>

FOR three years, from 1893 to 1896, Mr. A. S. Flint, of the Washburn Observatory, has devoted himself indefatigably to the determination of stellar parallax, and his results, contained in the eleventh volume of that observatory's publications, form a very handsome contribution to this class of inquiry. Not only are these results of great interest in themselves, but they offer a larger collection of new material than has ever been made on a single occasion. We have not only the observations of nearly a hundred stars, but all arranged and discussed on one uniform plan, a not unimportant factor in their bearing on the cosmical problem to which such results are applicable. The stars are scattered variously over the sky from the Pole to about 30° S. declination, and have been selected to include stars of considerable proper motion, a number of Prof. Burnham's double stars which show proper motion, and some twelve binary systems.

The method of observation was that suggested and employed by Prof. Kapteyn, namely, the chronographic registration of the time at which the selected star and two others, one preceding and one following, crossed the wires of the meridian instrument. The total number of observations, fairly evenly distributed between the morning and the evening, was 3659, all of which were made by Mr. Flint, while he is also responsible for the heavy work entailed in the discussion. Unfortunately, in this method of observation it is necessary to employ screens, varying in density, in front of the object glass, to reduce the light of the more brilliant star to approximately that of the stars of comparison. Experience has shown that very considerable errors are liable to be introduced in the determination of difference of R.A. when this precaution is overlooked. The ultimate value of the work will depend much on the success with which the screens are applied, and this source of error is eliminated. In this place we cannot enter fully into the devices employed or the discussion applied to the results. We can only say that the author has not found it sufficient to trust to the mechanical devices alone, but has had to submit his parallaxes to a further discussion, in order to remove systematic errors, and we can very well understand that this section of the work will be most carefully scrutinised by any astronomer who proposes to follow in the footsteps of Prof. Kapteyn or Mr. Flint.

The result of this examination is to determine a correction which the author has applied, and seeks to justify, depending on the difference of magnitude and the right ascension of the star. This correction can become so large that it might make one hesitate to apply the method in isolated instances, or wherever there is insufficient material to permit an independent inquiry. The correction which Mr. Flint applies to his parallax, or to the crude value resulting from the solution of the ordinary equations of condition, is  $\frac{1}{2}$ DM.  $y$ ; where  $\frac{1}{2}$ DM. is the difference between the apparent magnitude of the parallax star and the mean magnitude of the two stars of comparison, and  $y$  is given by the expression

$$y = +0''.067 + 0''.101 \cos. R.A.$$

If, then, the reduced light of the parallax star differed by one magnitude from the mean of the other two, a correction of 0''.168 might result, and inasmuch as a difference of two magnitudes is not impossible, corrections of nearly

<sup>1</sup> Publications of the Washburn Observatory of the University of Wisconsin. Vol. xi. "Meridian Observations for Stellar Parallax." First Series. By Albert S. Flint, Assistant Astronomer. Pp. 435. (Madison, Wis.: State Printer, 1902.)

four-tenths may be required, and in two instances 0''.36 is actually applied. This amount is a little startling, and though it would seem ungracious to suggest more work when so much has been attempted and carried to a successful issue, one cannot but wish that the author had made some complete sets of observations, without the use of a screen at all. Then, in the case of such a star as  $\beta$  Cassiopeia with its comparison stars, the amount of the correction would be some seven or eight-tenths of a second, a quantity which could not have escaped detection. To those who have not been engaged in similar inquiries it may seem strange that the error in R.A. arising from the observation of two stars of unequal magnitude is not constant, and therefore disappearing in the parallax. It may seem strange, too, that this puzzling discrepancy should vary with the time of year, for that is what the term depending on the right ascension practically means, but it must be sufficient here to refer to the volume itself, where the author has treated the matter in considerable detail, and given his figures in the clearest manner.

W. E. P.

### RIDGWAY'S AMERICAN BIRDS.<sup>1</sup>

MR. RIDGWAY is making good progress with his laborious task, the first part of this work (already noticed in these columns) having been issued in 1901. The remaining volumes (probably six in number) are in a forward state, and it is hoped may be published at the rate of two a year. The present bulky volume is devoted to four families of the Passeres, namely, the tanagers (Tanagridæ), troupials (Icteridæ), honey-creepers (Cœrebidæ), and wood-warblers (Mniotiltidæ).

The author's introductory remarks on the first of these groups afford a curious comment on the prevalent practice of dividing the Passeres into families. For the division between the tanagers and the finches (Fringillidæ) is stated to be an arbitrary one, and the former group, as now restricted, is confessedly more or less artificial. Indeed, it is suggested that the fruit-eating forms (Euphoniæ) may eventually have to be separated as a distinct family group. The author has already relegated to the Fringillidæ several of the genera included by Mr. Sclater among the Tanagridæ, while others he assigns to the Mniotiltidæ. Moreover, the possession of only nine primary quills being now regarded as an essential feature of the family, the aberrant genus *Calyptophilus* must obviously find a place elsewhere. Apart from the case of the last-mentioned genus, all this suggests that, however convenient the division into "families" of such an unwieldy group as the Passeres may be for working purposes, such divisions possess little title to be regarded as important morphological units.

In adopting the term "troupials" as the English equivalent of the family Icteridæ, the author is decidedly well advised, and it may be hoped that the practice will be adopted by future writers. In the definition of this family the author makes the general absence or slight development of the rictal bristles an important feature; but no reference to these structures is made in the main definitions of the tanagers and honey-creepers, in which they may or may not be developed. This, we think, is an omission, although we are fully aware of the importance of making definitions as concise as possible. The general plan of the "keys" appears, as in the first volume, excellent, and the plates illustrative of the beak, wing, tail, and foot-structures of the various groups described are equally satisfactory.

R. L.

### A PERIODICAL OF PRECIOUS PLANTS.

UNDER the title of *Flora and Sylva*, a new monthly periodical has appeared, edited by Mr. Robinson, and devoted to the illustration and description of "precious" plants, fitted for cultivation in these islands. It is beautifully printed in large type on good paper which allows of the woodcuts being properly printed. The illustration of the palmate bamboo on p. 3 is full of life, and forms a pleasing

<sup>1</sup> "Birds of North and Middle America." By R. Ridgway. Part ii. (*Bull.* U.S. Nat. Mus., No. 50.) Pp. xx + 834; 22 plates. (1902.)