

## OUR ASTRONOMICAL COLUMN.

**THE PROPER MOTION OF CASTOR.**—Taking into account both the true proper motion and the orbital motion of the system of Castor, Mr. Crommelin has determined a new value for the proper motion of the centre of gravity of the system. This new value is  $-0.0135s.$ ,  $+0''.120$ , and it represents the facts much more closely than those previously determined by Auwers and Newcomb respectively. In fact, the latter would have become entirely erroneous, in N.P.D., within a few years, for they were based on the assumption that the proper motion was uniformly rectilinear, whereas the orbital motion in N.P.D. will, in a few years, be entirely reversed. It is interesting to note that the new value was obtained by taking into account the spectroscopic as well as the meridian-observation results, and that the mass ratio obtained by Dr. H. Curtis, which shows that the mass of  $\alpha_1$  is six times greater than that of  $\alpha_2$ , is hereby confirmed (Monthly Notices R.A.S., December, 1906).

**LINE INTENSITY AND SPECTRAL TYPE.**—The results of an interesting investigation of compound lines shown on the stellar spectrograms obtained at the Mills Observatory, Chile, are published in No. 5, vol. xxiv., of the *Astro-physical Journal* by Dr. Sebastian Albrecht. From the spectrograms of stars of different types it was found that certain compound lines give progressive differences in the determined radial velocities as one passes from the type F to the type Mb in the Harvard classification. The investigation showed that these differences are probably due to the variation of intensity, rather than the presence or absence, of the same components of the blended line in passing from one stellar type to another. It also showed that, considering the origins of the variable lines, the physical conditions in the stars as we pass from the F (Procyonian) to the Mb (Antarian) type vary roughly in the same direction as from the sun to the sun-spots, a conclusion confirming that arrived at by Sir Norman Lockyer (Proc. Roy. Soc., vol. lxxiv., p. 53) in a paper which does not appear to have been noted by the American observers who have since dealt with this subject.

The awkwardness of having an arbitrarily chosen code, instead of self-explanatory general names, to represent stellar types, is strikingly illustrated in the present paper, where the reader's mind is constantly taxed in trying to remember the significance of such signs as Ma,  $K_2M$ ,  $F_8G$ , and so on.

**SILICON IN THE CHROMOSPHERE.**—At the last meeting of the Royal Astronomical Society, Mr. Fowler read a paper in which he demonstrated the probable presence of silicon in the chromosphere. This element was identified by the presence of two of its strong lines,  $\lambda$  6347.3 and  $\lambda$  6371.6, as well-marked lines in the chromospheric spectrum. Both lines occur in the Fraunhofer spectrum, with intensities and characters  $2N$  and  $1Nd?$  respectively, and the latter was ascribed to iron by Rowland, who failed to find an origin for the other. Both are probably enhanced lines, and are almost obliterated in the sun-spot spectrum (Monthly Notices, No. 2, vol. lxxvii.).

**VARIATION OF WAVE-LENGTHS IN THE SOLAR SPECTRUM.**—Whilst discussing his 1901-6 observations of the sun's rotation period, Dr. Halm discovered a previously unknown "shift" in two of the spectrum lines employed. The method used at Edinburgh is that in which the difference of the interval between certain solar and atmospheric lines at the sun's centre and at the limb is measured, this difference giving the "Doppler" displacement at the limb due to the sun's rotational motion. Dr. Halm found that this interval was not the same in 1906 as in 1901, and on analysing his results further he also found some indication of a three-year period in the variation, thus giving additional confirmation to the existence of a short period in solar phenomena such as found by Dr. W. J. S. Lockyer when discussing the relations between solar and terrestrial meteorological phenomena. Dr. Halm suggests that the "shift" discovered by him may be due to difference of pressure (*Astronomische Nachrichten*, No. 4146).

## MEETING OF THE AMERICAN ASSOCIATION AND ITS AFFILIATED SOCIETIES.

**T**HE fifty-seventh meeting of the American Association for the Advancement of Science and of the societies affiliated with it was held at New York, N.Y., during the recent convocation week (December 26, 1906, to January 2), under the presidency of the distinguished pathologist Dr. William H. Welch, of Johns Hopkins University. The meetings brought together a larger number of scientific men than ever before, and it is estimated that about 1800 scientific men and women were in attendance. The meetings for the most part were held in the compact group of buildings forming the Morning-side Heights property of the Columbia University, but the medical meetings of Section K (Physiology and Experimental Medicine) of the association, of the American Physiological Society, the American Bacteriological Society, and the American Society of Anatomists were held at the College of Physicians and Surgeons and at the Rockefeller Institute. The Geological Society of America and Section E (Geology and Geography) met at the American Museum of Natural History, and the Botanical Society of America and Section G (Botany) met at the Botanical Gardens. The opening meeting was held in Earl Hall, Columbia University, when the retiring president, Prof. C. M. Woodward, of St. Louis, introduced his successor, Dr. William H. Welch. An address of welcome was given by Dr. Nicholas Murray Butler, president of Columbia University, to which Dr. Welch responded.

The address of the retiring president, Prof. Woodward, was delivered at the Teachers' College on Thursday night, December 27, 1906, and was entitled "The Science of Education," a peculiarly apt topic for this meeting, since a new section, "L—Education," was founded at this time.

The addresses of vice-presidents, that is, the chairmen of sections, were extremely interesting. On Thursday afternoon Vice-president Ward, in his address before the Section of Zoology, used as his subject "The Influence of Parasitism on the Host"; Vice-president McNair, before the Section of Mechanical Science and Engineering, spoke on "Some Problems Connected with Deep Mining in the Lake Superior Copper District"; Vice-president Fisher, before the Section of Social and Economic Science, spoke on the topic, "Why the *Laissez-faire* Doctrine Failed"; Vice-president Rice, before the Section of Geology and Geography, spoke on "The Contributions of America to Geology"; Vice-president Sedgwick, before the Section of Physiology and Experimental Medicine, spoke on "The Expansion of Physiology"; Vice-president Eichelberger, before the Section of Mathematics and Astronomy, had as his title "Clocks—Ancient and Modern"; Vice-president Mabery, before the Section of Chemistry, spoke of the "Education of a Professional Chemist"; Vice-president MacCurdy addressed the Section of Anthropology on the subject of "Some Phases of Prehistoric Archaeology"; Vice-president Crew, before the Section of Physics, spoke on "Fact and Theory in Spectroscopy"; and Vice-president Smith, before the Section of Botany, under the title "Problems in Plant Pathology."

One of the most interesting and important features of the meeting was the holding of a number of joint sessions between different societies and sections. For example, the afternoon of December 27 was devoted to a symposium under the auspices of Section K (Physiology and Experimental Medicine) at the College of Physicians and Surgeons on the subject of protozoa as factors in disease, a discussion in which both the pathologists and the botanists joined. On the following day a joint meeting of the Society of Zoologists and the Sections of Zoology and Botany was held for the reading of papers on heredity in plant and animal breeding, and on that day Section K held a joint meeting with the Society of American Bacteriologists. There was also a general discussion under the auspices of the American Society of Naturalists on the general topic "The Biological Significance and Control of Sex." On the same day a new Entomological Society of America was founded, with nearly 200 members, and a public lecture was delivered under its auspices by Dr.