

WITH the close of the year 1909 the hundredth volume of the *Chemical News* was completed; and as these volumes cover a period of fifty years' progress in chemistry and physics, the announcement that a general index has now been prepared, and is in the press, will be widely welcomed. The price of the general index on publication will be 2*l.*, but to subscribers who order it before the date of publication the price will be 1*l.* 15*s.*

THE first part of an important work on "The Birds of Australia," by Mr. G. M. Matthews, will be issued by Messrs. Witherby and Co. next month. The author has lived all his life in Australia, and has been a devoted student of its avifauna. He has secured the active assistance of a large number of field-ornithologists in all parts of Australia, and his work will incorporate all the available information upon the subject with which it deals. There will also be hand-coloured plates depicting all the known species of Australian birds. The edition of the complete work is limited to three hundred numbered sets.

OUR ASTRONOMICAL COLUMN.

A BRIGHT PROJECTION ON SATURN.—In No. 4445 of the *Astronomische Nachrichten* Signor M. Maggini describes a brilliant projection which he observed on the west limb of Saturn at 23h. 36m. (Cent. E.M.T.) on September 29. The observation was made at the Ximeniano Observatory, Florence, with a 350 mm. Calver telescope, and the projection was seen in profile against the shadow cast by the planet on the ring. It was also seen to be near a large whitish spot at the edge of the south equatorial band. The phenomenon remained visible until the whitish spot left the terminator, and was last seen at oh. 20m. September 30.

SPECTRUM AND RADIAL VELOCITY OF ϕ PERSEI.—The spectrum of ϕ Persei is a peculiar one, in which a dark, narrow, H γ absorption line appears to be bordered by very bright lines, and as this is the most prominent line on which radial-velocity determinations have been made, the values of the line-of-sight motion have not been in full agreement.

An investigation carried out by Dr. Ludendorff has explained some of the anomalies, and the results now appear in No. 4442 of the *Astronomische Nachrichten*. Photographs were taken at Potsdam on which other faint lines, which could be identified with solar lines in Rowlands's tables, were measurable, and the radial velocities have been determined from these independently. Among other results, Dr. Ludendorff finds that the intensities of the components of the H γ line oscillate, so that when the emission lines are faint the absorption line is strong, and *vice versa*, but he has been unable to discover any law for the complementary oscillations. The variation curves and the departures from them during several revolutions show that the conditions in the system of ϕ Persei are very complicated and unusual.

METCALF'S COMET, 1910b.—Observations of Metcalf's comet, made by M. Quéniisset at the Juvisy Observatory, are placed on record in the October number of the *Bulletin de la Société astronomique de France*. On August 24 the comet was seen as a tenth-magnitude nebulosity having a well-marked condensation and a tail about 4' long in position-angle 120°; with an exposure of sixteen minutes, using a portrait lens working at f.3, a tail 45' long was shown on the photograph.

New elements and a daily ephemeris for this comet are published by Dr. Kobold in No. 4445 of the *Astronomische Nachrichten*. The elements give the time of perihelion passage as September 16, and, according to the ephemeris, the brightness is now slowly declining from magnitude 11.8. The comet is now travelling northward slowly through Serpens, its position for October 20 being given $\alpha = 15^{\text{h}}$. 28m., $\delta = +19^{\circ}$ 12.5'.

COMETS AND ELECTRONS.—In an address to the Royal Academy of Science, Bologna, Prof. Righi discussed at length the functions of electrons in producing cometary

phenomena; this address now appears, with a French translation, in No. 16, vol. viii., of *Scientia*. Prof. Righi outlined the several theories which have been evolved to account for the various phenomena, paying special attention to the experimental proof of light-pressure, and then showed how the electrons emitted by the sun could produce ionisation, which in turn would lead to such repulsion as would cause the development of a tail. In concluding, he described the results of some experiments carried out at Bologna during the earth's passage through the tail of Halley's comet on May 19. No remarkable variations in the atmospheric potential were recorded, but a greater degree of ionisation than usual was found to exist. The existence of radiations capable of travelling through black paper to a photographic plate was also demonstrated, but this experiment alone is not considered definite enough to warrant the assumption that these radiations could be ascribed to the proximity of the cometary matter.

MEASURES OF DOUBLE STARS.—In No. 4445 of the *Astronomische Nachrichten* the measures of double stars made by Mr. Sellors at the Sydney Observatory during 1897-1900 are published. Notes appended to many of the sets of measures give important information as to changes in position-angle and distance during definite periods, &c. No double-star observations were made at Sydney during the years 1901-8.

RECENT RESULTS IN SOLAR PHYSICS.—As an extract from the *Atti della Società italiana per il progresso delle scienze* we have received a brochure in which Prof. Riccò gives a very interesting, important, and comprehensive résumé of the results obtained from the study of solar physics during recent years. After briefly summarising the earlier researches, Prof. Riccò directs attention to the importance of correlating solar and meteorological phenomena, and refers briefly to the results obtained by Meldrum, Köppen, Lockyer, Bigelow, Nordmann, and others. Then he describes the different organisations which deal with solar research, and passes on to the spectroscopic results. This leads to a long discussion of the spectroheliographic results, and finally to the knowledge obtained from eclipse work.

THE NINTH INTERNATIONAL CONFERENCE ON TUBERCULOSIS.

THE International Conference on Tuberculosis held its ninth series of sessions at Brussels on October 5-8 under the patronage of King Albert of Belgium, who throughout took a very keen interest in the conference. The first day, October 5, was devoted to the meetings of the council and to the organisation of permanent commissions, some dealing with entirely new subjects, others with subjects already under consideration. To six of these commissions are referred questions of a more or less scientific character; to another six questions in which social elements predominate.

In the first group predisposition occupies the first place. In this group also are the commissions dealing with channels of infection; milk; methods of treatment, scientific and vaccinal; international method of notation; and the action of the solar rays.

In the second group are included the part played by women in the crusade against tuberculosis; child life and school hygiene; prophylaxis and the part played by the dispensary; the cure (?) of tuberculosis; public measures to be taken against tuberculosis; and the statistics concerning tuberculosis.

On these commissions are represented, so far as possible, the different nationalities taking part in the work of the congress.

On Thursday morning, October 6, the opening ceremony of the conference was under the presidency of M. Berryer, Minister of the Interior, who in a thoughtful and well-informed address compared the Tuberculosis Congress to the great Peace Congress at the Hague, "both inspired by the same profound thought and both wishing to obtain the same results," the former, indeed, helping the latter, "the warring of man against man being gradually replaced, thanks to a more humane sentiment, by a bringing together of all men in common action against the universal ills, vice, misery, disease, and death," a sentiment that