

Marine Engineers in New York. Whatever may be the decision of the U.S.A. authorities as to the surface speed necessary, the author of this paper is firmly convinced of the relatively greater importance of the submerged qualities for this type of boat, and believes that battery capacity and submerged radius of action and speed should not be unduly sacrificed either in the interests of durability or first cost.

OUR ASTRONOMICAL COLUMN.

A NEW COMET.—According to a telegram received on December 5 from Prof. Strömngren, Copenhagen, a message from the Cape to the Astronomer Royal announces that a new comet was observed by Taylor on December 2 in a position "three minutes preceding sixteen minutes south of δ Orionis." It is stated to be moving slowly north, but no indication is given of its magnitude.

THE SOLAR ROTATION.—The detailed account of a valuable spectrographic determination of the latitude variation in velocity of the sun's rotation is presented by Mr. J. B. Hubrecht in a memoir forming part i. of vol. iii. of the Annals of the Solar Physics Observatory, Cambridge (see also Monthly Notices, R.A.S., No. 8). Four series of spectrograms were secured during the first fortnight of June, 1911, with the McClean solar instruments. Each series contained the material—forty-eight plates—from which velocity differences have been derived for pairs of plates taken in positions separated by 90° at intervals of 15° around the sun's limb. The region studied was $\lambda 4300$ – $\lambda 4400$, under a dispersion in fourth order such that $1 \text{ \AA.U.} = 1.13 \text{ mm.}$ Attention may be directed to a point regarding the manipulation of the Zeiss comparator; the settings were made by simply pushing the slide, and the readings were taken to 0.0001 mm., with an average probable error per displacement of only 0.0004 mm.

The results obtained indicate that the velocities probably vary regularly according to wave-length, diminishing towards the red, due to some physical cause residing in the sun itself. The distribution of the velocities appears to be consistent with the requirements of Emden's theory of the constitution of the sun.

GALACTIC CO-ORDINATES.—The progress made of recent years in stellar astronomy has directed increasing attention to the employment of a natural system of co-ordinates in place of those based on the arbitrary, ever-changing geo-solar planes of reference. The fundamental plane of reference is obviously determined by the Milky Way, but there remains to be fixed the point of departure in longitude. Unfortunately, from analogy with the standard system choice of this initial point has fallen on the ascending node of the galaxy. Mr. R. T. A. Innes, in advocating the general introduction of secular co-ordinates, pointed out the great economy of effort they afford in connection with the study of the planetary motions, and proposes to fix the zero of galactic longitude by the apex of the sun's way, thus entirely eliminating the effect of precession. In Circular No. 29 of the Union Observatory, Mr. Innes supplies a convenient table for the conversion of equatorial into galactic co-ordinates. The table is calculated on the basis of Newcomb's position of the pole of the galaxy ($\alpha 191.1^\circ$, $\delta +26.8^\circ$), and Campbell's determination of the solar apex ($\alpha 270.0$, $\delta +30.0^\circ$), and contains the galactic equivalents of every 5° of declination and twenty minutes of right ascension, also galactic parallactic angles for converting north pole position angles into

corresponding position angles referred to the north galactic pole.

A MARTIAN CALENDAR.—In Report on Mars, No. 10, Prof. William H. Pickering gives what should prove a convenient calendar for the use of observers of the planet Mars. The Martian year is divided into 669 calendar days of 24h. 38m. 42.04s. each, the planet's sidereal day (*i.e.* time period of rotation) being 1m. 19.39s. shorter. Fifty-six days are allotted to the first nine "months," and one day less to each of the other three. The "week" of seven days is thus retained as a unit. The year commences at vernal equinox, Martian date, March 1=terrestrial date, March 20. The same report also contains some remarks on the possibility of observing gemination of canals during the coming opposition, and concludes with a discussion of colouring of the markings.

THE CENTENARY OF THE SOCIÉTÉ HELVÉTIQUE DES SCIENCES NATURELLES.

THE centenary of the Swiss Natural Science Society was celebrated on September 12–15. The meeting was a great success, and was marked by two touching ceremonies: the placing of a laurel crown before the monument of Henri Albert Gosse, the gifted apothecary of Geneva, who with Pastor Wyttenbach, of Berne, originated this great national society, and the inauguration of a monument to the Swiss naturalist Forel at Morges. Both these monuments consist of fine erratic blocks, with the head of the naturalist carved in the form of a medallion. One stands in the shady garden surrounding the University of Geneva; the other has been placed in one of the most exquisite spots on the banks of Lake Lemman. But it is not in these grand stones that we must seek the record of the fame of those they commemorate. It is in the living society which has carried out the ideals and continued the work of its founders—a society of which Forel formed until three years ago a prominent member—that the glory of these simple lovers of Nature and of their country is to be found.

The primary idea in founding the society was patriotic; a secondary one, dependent on the success of the undertaking, was that the society would be visited by *savants* from all countries, and that it might prove itself a source of light the rays of which should spread over the whole scientific world. Both these ideas have been realised in the hundred years that have passed, but it is interesting that the centenary should fall at a moment when the former only could have any prominence.

There were no official delegates from foreign countries, and practically all the participators were Swiss. The author of the present account was the only member of the English scientific world at the meeting, but she and Prof. W. H. Young, whose absence in America alone prevented his giving personally the communication presented in his name, are accepted by the Genevese scientific circle as almost, if not quite, of them.

In these circumstances, and in view of certain superficial elements of discord between the French and German Swiss, which the war has brought under the eye of the public, the occasion was made one for a manifestation of patriotic feeling. The President of the Confederation was present, and gave a memorable and eloquent address to the society after the official banquet at the Parc des Eaux Vives, lately become the property of the town of Geneva. President Motta is a native of Italian Switzerland, a fact