

and, if so, whether the direction is governed by the contour or physical features of the country.

By First Method.

Date, 1920	Difference, Sec.	Wind direction	Daily horl. motion of the wind, Miles	Amplitude μ	Wave period, Sec.
Jan. 31	0.0	S.—W.S.W.	427	5.8	7.3
Feb. 2	0.0	S.W.—S.	587	4.0	7.5
„ 6	1.5	S.S.E.	295	2.8	6.7
„ 9	1.0	W.S.W.	491	3.2	6.3
„ 10	1.0	S.W.	670	9.5	8.0
„ 12	0.0	W.N.W.—S.	354	3.6	6.2
„ 13	2.0	S.S.W.—W.	528	6.4	6.8
„ 15	1.5	S.	423	5.0	6.2
Average	0.87		472	5.0	6.9

By Second Method.

Date, 1920	Difference, Sec.	Wind direction	Daily horl. motion of the wind, Miles	Amplitude μ	Wave period, Sec.
March 4	1.0	W.S.W.—S.	260	4.9	7.5
„ 5	1.0	S.	285	1.6	6.7
„ 6	0.75	S.	476	4.5	6.0
„ 8	1.1	N.W.	407	2.4	6.7
„ 9	—	W.	178	—	—
„ 10	0.7	S.S.W.	272	7.0	7.0
„ 11	1.1	N.W.	257	4.9	6.5
„ 12	0.5	W.	541	5.7	6.0
„ 13	1.0	S.	377	4.5	6.2
„ 18	0.8	W.	500	4.0	6.7
„ 19	—	W.	228	2.0	6.0
„ 20	—	W.	131	0.8	5.5
„ 24	0.8	S.	348	4.0	7.3
„ 26	0.7	S.	613	5.3	7.3
„ 28	0.8	S.	498	3.2	5.7
Average	0.83		371	3.9	6.5

The Tercentenary of Jean Picard.

By DR. J. L. E. DREYER.

AN article on "Le tricentenaire de l'abbé Picard," by M. E. Doublet, in the *Revue générale des Sciences* (September 15-30), directs attention to the tercentenary of the well-known French astronomer, Jean Picard, who was born on July 21, 1620. Very little is known about Picard's life, so that even the year of his death is uncertain (about 1683). He was a pupil of Gassendi, and took up the study of astronomy at latest in 1645, when he observed the eclipse of the sun on August 21 of that year, and it was as an observer that he was chiefly distinguished. Though he was not the first to apply telescopic sights to astronomical instruments, he was almost certainly not aware that this had many years before been done by William Gascoigne; but Picard was at any rate the first to make use of this invention in an extensive series of observations, when he, in 1669 and 1670, determined the size of the earth. This was done by a triangulation from Sourdon, near Amiens, to Malvoisine, south of Paris, on the plan first proposed and carried out by Snellius about fifty years earlier. Picard measured a base along a level and well-built road from Villejuive to Juvisy, 5663 toises long. It is deserving of special notice that he compared his standard toise with the length of the seconds pendulum, "lest the same should happen to it as had happened to all previous standards"; and that did indeed happen, for his toise is lost. The results of this, the first modern geodetic operation, were published in Picard's "Mesure de la terre" in 1671.

In 1669 Picard presented to the Academy a memoir on the most important astronomical observations which ought to be undertaken. Among these is a new determination of the right ascensions of stars by direct comparison with the sun; this had never been done before without observing an intermediary body (the moon or Venus) which could be seen in the daytime. But it was now possible, as Picard had found in the previous

year, to observe stars in daylight with the telescope attached to his quadrant. Another desirable undertaking was the accurate determination of the position of Tycho Brahe's observatory. This he was able to carry out in 1671, when the Academy sent him to Denmark for that purpose. The results of his observations on the site of Uraniborg were published in 1680 in his "Voyage d'Uranibourg." This expedition became memorable in two ways. First, because Picard, in his account of it, describes certain apparent motions of the Pole-star towards or away from the pole, of which the period was a year, and which, he says, he had noticed for about ten years. From the details given, it is evident that Picard was the first to notice the effect of aberration on the apparent place of a fixed star; and when he adds that these irregularities were in some years smaller than in others, it shows that the effect of nutation was also beginning to be felt. But it was reserved for Bradley both to discover the laws governing these phenomena and to give the correct explanation of them.

The second valuable result of Picard's journey to Denmark was that he made the acquaintance of Römer at Copenhagen, and persuaded him to go to Paris with him. Römer stayed nine years in Paris, and it was there that he in 1675 announced his discovery of the gradual propagation of light. We know from his letters to Huygens that he at once realised that this must produce aberration. Considering that he and Picard lived together at the Paris Observatory, it is rather strange that they did not compare notes and remark how perfectly this agreed with Picard's observations of the Pole-star. But Römer scarcely ever published anything, so it is not impossible that he may have noticed the agreement, and did not care to publish it.

Picard from time to time carried out various geographical operations in France, the results of which are included in his "Ouvrages de Mathe-

matique" (1736). He was a very active observer at the Paris Observatory from 1666 to 1682, and his observations, which were chiefly made with a 9-ft. quadrant, were finally printed in Le Monnier's "Histoire Céleste" (1741). Though his work was less showy than that of his colleague

Cassini, Picard deserves an honourable place in the ranks of astronomers as one of the comparatively few observers with instruments of precision in the period between Tycho Brahe and Flamsteed, and as the pioneer in the application of the telescope to this work.

Robin's Water-music.

By PROF. W. GARSTANG.

SCARCE heard amid the choral throng
That gave the Spring its greeting,
You triumph, Robin, when your song
Marks Summer's joys retreating;
Then, while the green leaves flame to gold,
And rain drips o'er their embers,
You raise, above the sodden mould,
The song of all Septembers.

Erratic, wistful, sweet and shrill,
The grave and gay you mingle,
As changeful as the trickling rill
That voices glade and dingle,—
From high to low,
Now swift, now slow,
Like water o'er the pebbles,
Meandering here,
And darting there,
To sparkle in the trebles.

Chir'ri-tew! Ir'ri-tew!
Wis'-yoo, Wis'-yoo!
Wee'!—Swee'!—Tew-ay!
Tew, tew', tew, Psee'!
Chirri-wee'! Tyo-to'!
Se-Wis'sy-wissy, Wis'sy-wissy, Wee'!

Until, in soft soliloquy,
You enter realms more tender,

And drop, from heights of ecstasy,
A falling trail of splendour,—
Brilliant gems no casket treasures,
Crystal tones no music measures,—
A glittering, flickering, tinkling streamlet,
Fragile as a dream.

See, See', See, TSEE'. . .!
Choo-it'ty, Tu-it'ty, Choo-it'ty, Tu-it'ty, Choo-ee'!
Wee-chee'! Wee-tsee'. . .!
Che-wir'rio-ir'rio-wir'rio-ir'rio-ee'!
As rockets soar
Aloft to fall in twinkling disarray,
As fountains pour
To break adrift in showers of glistening spray.

* * *
Tit-it'! Tit-it-it-it'! Tit'! Tit'!
Yes, Robin, yes! I must admit
(*Tit-it'-it-it'! Tit-it'-it-it'!*)
My actions were suspicious,—
For no true gardener stops his spade
To hear a little bird's cascade
Of music, though delicious!
But when, enraptured, down the scale
You dance by steps so slender,
The Nightingale's *Tyo-tyo'-tyo-tew'*,
The Thristle's *Tirra-lirra-loo*,
Grow pale
Before your rich chromatic splendour!

Notes.

THE following is a list of those recommended by the president and council of the Royal Society for election to the council at the anniversary meeting on November 30:—*President*: Prof. C. S. Sherrington. *Treasurer*: Sir David Prain. *Secretaries*: Mr. W. B. Hardy and Mr. J. H. Jeans. *Foreign Secretary*: Sir Arthur Schuster. *Other Members of Council*: Mr. J. Barcroft, Sir William Bragg, Dr. A. W. Crossley, Prof. J. B. Farmer, Sir Walter Fletcher, Prof. A. Fowler, Dr. A. C. Haddon, Sir Robert Hadfield, Sir Thomas Heath, Prof. J. Graham Kerr, Prof. H. Lamb, Sir William Leishman, Dr. S. H. C. Martin, Prof. J. W. Nicholson, Mr. R. D. Oldham, and Prof. W. P. Wynne. Prof. Sherrington, who is to succeed Sir Joseph Thomson as president, is the Waynflete professor of physiology in the University of Oxford, and was formerly professor of physiology in the University of Liverpool and Fullerton professor of physiology at the Royal Institution. He was elected F.R.S. in 1893, and was awarded a

Royal medal in 1905 for his researches on the central nervous system.

DR. E. H. GRIFFITHS has been elected general treasurer of the British Association in succession to the late Prof. John Perry. The council of the Association has agreed to the formation of a separate Section of Psychology, as recommended by the Sections of Physiology and Educational Science at Cardiff, and approved by the general committee. Consideration of the number and scope of the various Sections is to be referred to a special committee. It has been decided to invite national Associations for the Advancement of Science to send representatives to annual meetings of the British Association in future.

THE council of the British Association has recently had before it the suggestion made by Prof. Herdman in his presidential address at Cardiff for a new *Chal-lenger* expedition for the exploration of the great oceans of the globe with modern instruments and