

Taking the *Pleuronectidae* as a whole, we certainly get a division into dextral and sinistral groups, which might be supposed to be the result of a "like to like" segregation at an early period. The following table of the sub-families, compiled from Messrs. Jordan and Goss's excellent work on these fishes, illustrates the point:—

- (1) *Hippoglossina*: normally dextral, except the tropical species, which are sinistral.
- (2) *Pleuronectina*: sinistral flounders.
- (3) *Oncopterina*: dextral.
- (4) *Platessina*: dextral, but *Platichthys stellatus* is frequently sinistral.
- (5) *Soleina*: dextral soles.
- (6) *Cynoglossina*: sinistral soles.

But how comes it that the tropical flounders are nearly all sinistral, while the Arctic and Antarctic ones are chiefly dextral?

It would be interesting to know more of the reversed aberrations which occur. *Platessa flesus* var. *passer* (Linn.) is a reversed form, and Day records reversed aberrations of *Solea solea*, *Pleuronectes rhombus*, and *P. maximus*, while others have been noted by various writers. T. D. A. COCKERELL.

West Cliff, Custer Co., Colorado,
April 25.

Variation in the Nesting-Habits of Birds.

IN connection with T. D. A. Cockerell's letter, *re* the nesting-habits of the blackbird in Colorado, it may be of interest to note that in the grounds around our residence about a fortnight ago, I discovered the nest of a blackbird (*Merula vulgaris*) built upon the ground close to a boundary wall about five feet high. The bottom of the nest is resting on the ground, but there is some trailing ivy growing around—but not on the wall—which supports it at sides and partially obscures it. There is a public road on the other side of the wall and the noise of considerable traffic. There are many suitable trees, bushes, and shrubs, all around, some of which have been utilized by other blackbirds—indeed, there is a tree within a few feet of the nest, which would have been suitable but for the chances of observation from the road. THOS. SWAN.

Bankplace House, Leslie, Fifeshire, Scotland, May 7.

Doppler's Principle.

IN answer to a correspondent who has met with a difficulty in the consideration of Doppler's principle, I may say that I think I fairly solved the difficulty in a paper delivered last year before the University College Chemical and Physical Society. In cases (1) and (2) of your correspondent, viz. approach or recession of observer, source and medium being at rest, the correct formula is $n' = n \frac{a \pm v}{a}$; and in cases (3) and (4), viz. approach and recession of source, observer and medium at rest, it is $n' = n \frac{a}{a \mp v}$.

n' = the new, and n the old frequency of vibration of the note heard. It should be remarked, however, that in all practical cases, the two formulæ give very nearly the same result; but if the velocity v is very great, the case is entirely different. Suppose, for instance, in cases (1) and (2) that v = velocity of sound a , then $n' = 2n$ for approach, and 0 for recession of the observer. The correctness of these results is obvious without the aid of any formula. Again, in cases (3) and (4) suppose $v = a$, then $n' = \infty$ for approach, and $\frac{n}{2}$ for recession of the source of sound. The effect of an infinite number of waves striking the ear at the same moment would be simply that nothing would be heard. It would be interesting to notice the change in pitch of the whistle of a rifle-bullet passing near an observer. Ganot's formula is correct for cases (1) and (2), and Prof. Everett's for cases (3) and (4); the proofs are very simple, and may be easily thought out. When the observer and the source of sound both move, the two formulæ should be applied separately when a very accurate result is desired. These conclusions have been confirmed by Dr. Fison, of University College. I had not considered the effect of the motion of the medium, but it appears to me, after a little reflection, that this would increase or diminish the velocity of the sound, and the wave-length, in the same proportion, leaving the pitch unaltered; the velocity of the medium should therefore be added to or subtracted from a in the formula.

University College, May 5.

E. P. PERMAN.

"Index Generum et Specierum Animalium."

NATURALISTS have long needed a reference book to the names of genera and species. Such a want has already been partially supplied by Agassiz, Bronn, Morris, Marschall, Scudder, Waterhouse, and others—only Bronn and Morris having attempted palæontological species—but no one book including references to all names given to living and fossil animals has yet been attempted. Botanists, more fortunate, will soon possess Daydon Jackson's index to flowering plants. The idea has therefore suggested itself to me to begin at the end of June next, such an "Index Generum et Specierum Animalium," taking the following rules for guidance:—

- (1) The earliest reference is to date from the twelfth edition of Linnæus, 1766.
- (2) The last reference to close with December 31, 1899.
- (3) The names of genera and species to be given in a single alphabetical sequence, and accompanied by a reference to the original source.
- (4) The names of species of each genus to be also quoted in alphabetical order under that genus.
- (5) No attempt at synonymy to be given; but, to assist reference, the various genera in which a species has from time to time been placed, to be indicated under that species.
- (6) Pre-Linnæan names to be quoted as founded by the author first using them after 1766:—*e.g.* *Echinocorys*, Leske, 1778 (*ex* Klein, 1734). Should a pre-Linnæan species or genus have been re-named after 1766, before the post-Linnæan use of that pre-Linnæan name, the new name is to stand. [References will be given to Artdi, Brisson, and Scopoli, in accordance with British Association rules.]

Among the many offers of assistance, that of Prof. Flower, F.R.S., Dr. Günther, F.R.S., and Dr. Henry Woodward, F.R.S., who have promised the necessary space for the storage of the MS. in the Natural History Museum, is most valuable, as it practically ensures safety from fire, and renders the MS. easily accessible to those wishing to consult it while still imperfect.

The contribution of inaugural addresses, theses, or other publications difficult to obtain, would be of great assistance; and, after use, such pamphlets would be handed over to the library at the Museum.

Any suggestions for the improvement of this plan, before the commencement of the undertaking, would be gladly received and carefully considered.

Appended is a rough outline of the scheme:—

[cordatus -a, -um]		
Amphidetus (Penn.) Düb. and Koren, Zool. Bid. 285	1844	
[<i>v.</i> Echinus]		
Amphidotus (Penn.) E. Forbes, Brit. Starf. 190, fig.	1841	
[<i>v.</i> Echinus]		
Echinocardium (Penn.) J. E. Gray, Cat. R. Ech. 43	1855	
[<i>v.</i> Echinus]		
Echinus, Pennant, Brit. Zool. iv. 58, xxxiv. 2, xxxvi. 2	1777	
[<i>v.</i> also Amphidetus, Amphidotus, Echinocardium, Spatangus]		
Spatangus (Penn.) Flem. Brit. Anim. 480	1828	
[<i>v.</i> Echinus]		
Cordia, Stål, Hem. Afric. iv. 78 Hem. 1866		
[albilateralata, peragrans.]		
Cordienia, A. Rouault, B. S. géol. France, v. 207.. Gast. 1848		
[biaritziana, iberica, palensis, pyrenaica, all <i>nom. nud.</i>]		

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"The Anatomy of the Frog."

IN your notice of the above work, in NATURE of the 8th inst., you are pleased to express a favourable opinion of the wood engravings. As the heading of the article might lead your readers to imagine that these, in addition to the coloured plates, were all executed by Hofmann, of Bavaria, I think they, as well as yourself, will be pleased to know that all the *new* blocks, numbering upwards of one hundred, were engraved by 172 Strand, London. T. P. COLLINGS.