

in manufactures and commerce depends on very many elements, as you know, one of the most important of which is the "item" "carriage or transport." British superiority in many manufactures and markets has depended, and will henceforth largely depend, on that one item principally (take the case of iron ores), and to maintain superiority it must receive in the immediate future more careful attention and scientific treatment. Roads in their different forms enter largely as factors into the general question of "transport," and if trade superiority is to be maintained they must be looked after and treated, all over these countries, in a more scientific and skilled manner than that now prevalent in the United Kingdom. For that end there must be attained, as soon as possible, uniformity of make, treatment and control, and the highest efficiency as regards care and maintenance, and to ensure these results they should be placed under the charge of a body of trained engineers, such as those of the "ponts et chaussées" of France. The question to a certain extent resembles that of the currency of the realm, and as there is a perfectly uniform coinage for every part of it, so should the make and use of the roads be of one standard all over the kingdom, in the best interests of all who travel or convey goods. The Board of Trade controls the railways, why not a Board or Department for the roads? and thus obviate the many absurd and scandalous practices which exist and are allowed to prevail, to the great discomfort and loss of the community. Allow me to give my experience of what is taking place in the township of Pembroke (Dublin). The road "metal" mostly in use is simply the coarser riddlings from the drift gravel so abundantly and cheaply worked in the neighbourhood of the Town Hall. The stones, perfectly rounded, incapable of taking bond and largely composed of entirely rotten elements, are loosely thrown here and there, where prominent holes appear. Mr. Beete Jukes, the former head of the Geological Survey of Ireland, remarked when he saw the material used, that boiled potatoes might as well be employed, and the rapid wear fully bears out the correctness of this judgment, and hence a large staff of scavengers and carts, discomfort for all classes of road-users, and steady increase of rates. In a southern county I have seen the road surface worn into the form of the section of an inverted arch, and was informed by a competent authority that the county surveyor, a Whitworth scholar, secured the place as the result of a Civil Service examination, the pay being about 800*l.* per annum, and thus secured, proceeded to develop a private practice as civil engineer, leaving the roads to attend to themselves. Many other examples of this nature might be given. As to the importance of good roads from a military point of view, it should be unnecessary for me to refer to it. I see from time to time the Dublin garrison companies and battalions out on marching exercise and notice the draggled appearance in which the men come home when the weather is in any way moist or rainy, and reasonably associate this condition with the bad state of the roads about Dublin. The Romans certainly knew better on this branch of military engineering, and might still be copied. As for agriculture, the Americans have gone thoroughly and systematically into the question, and are taking effective measures to put their road systems into a proper working state, and to have them kept up to it. I trust, Sir, that you will excuse these rather extended observations and that you will see your way to urging the pressing importance of a uniform and general system of road making and maintenance for the kingdom on the grounds of high State utility, commercial importance and agricultural necessity.

Dublin, December 28, 1901.

Preoccupied Names in Zoology.

THIS afternoon I spent a little more than half an hour over the "Zoological Record" for 1899, looking for preoccupied generic names proposed in that year. The result was as follows:—

Baris, Loos, for a plathelminth in the alimentary canal of *Chelonia* is untenable because of Baris, Germ., a genus of beetles.

Astia, Loos, for a worm in gut of *Tetrodon*; *nec* Astia, Koch, an arachnid.

Brotella, Roverto, new name for *Acrostoma*, which was preoccupied; *nec* Brotella, Kaup, in fishes.

Cumopsis, Roverto, new name for *Cuma*, Humph., preoccupied; *nec* Cumopsis, Sars, Crustacea.

Eichwaldia, Smitt, new subgenus of *Gobius*; *nec* *Eichwaldia*, Bill., Mollusca.

Goniopsis, Melichar, new genus of *Fulgoridæ*; *nec* Goniopsis, Haan, Crustacea.

Halticella, Jacoby, new genus of beetles; *nec* Halticella, Spinola, Hymenoptera.

Xenus, Péringuey, new genus of beetles; *nec* Xenus, Kaup, in birds.

I left off with the feeling that by taking time such instances could be multiplied almost indefinitely!

This is a condition of affairs which is becoming intolerable. None of the authors of the above names had even taken the trouble to consult the "Nomenclator Zoologicus." Such names become current for a number of years, until someone happens to discover that they have been used before. The result is an inconvenient though necessary change and a useless synonym. Sometimes authors will not even correct these errors of nomenclature when their attention is directed to them, and if they do propose a substitute there is no telling whether it will be valid.

Would it be practicable for some representative body, such, for instance, as the staff of contributors to the "Zoological Record," to examine every new generic name proposed and issue from time to time a list of substitutes for names found untenable? Or, if it were preferred, the author in each case could be asked to propose a substitute, and then all the substituted names could be given in an appendix to the "Zoological Record." Whatever is done, it seems necessary that these errors should be promptly corrected, and equally plain that this cannot be left to the unaided intelligence of authors.

T. D. A. COCKERELL.

East Las Vegas, New Mexico, U.S.A., December 16, 1901.

A Luminous Centipede.

MR. R. I. POCKOCK, to whom I sent the subjoined extract from notes made by me on June 5, 1897, has suggested that the observation would be of interest to readers of NATURE. He remarks: "The two new facts you have observed—namely, the defensive purpose of the substance and its irritating properties—are, I think, sufficiently important to put upon record." The notes are as follows:—

"Under the entrance gate, in the gravel, I saw a light of a brilliant greenish-bluish tint; it moved forward, leaving behind a trail of light which, gradually separating, became a scattered mass of brilliant points. The leading light had the form of a living, curving thread. A lighted match soon showed what the scattered points of light in its trail were, a dozen or so of red ants pursuing the *Geophilus*; one was clinging to it, each ant shone like a spark in the gravel, the centipede had discharged its fluid over them. I picked up the centipede and dropped it into a tumbler, where it splashed out a mass of light. Hurriedly placing my hand over the tumbler to prevent the insect from escaping, I felt suddenly a strange prickly sensation such as is caused by a slight contact with electricity, so that I hastily removed my hand, calling to a friend who, placing her hand over the tumbler, felt the same thing.

"I lit another match and watched the *Geophilus* writhe the light out of its body in blue-green flashes. It soon ceased to shine, having probably exhausted all the luminosity on its enemies.

"Defence seems certainly to be one of the uses of this secretion, attributed by some authors merely to purposes of attraction.

ROSE HAIG THOMAS.

"The White House, Basildon, Reading."

The New Planetoid.

THE note on Prof. Pickering's announcement of the discovery of a new planetoid moving in a very elliptic orbit, in the Astronomical Column of your issue of December 19, 1901, was read by me with much interest.

I should, however, like to point out that the orbit of the new planetoid is not the most elliptic yet known, that place being held, I believe, by *Æthra* (182), for which ϕ amounts to $22^{\circ} 32'$ (Watson's orbit), while for the new planetoid ϕ is $22^{\circ} 8'$.

Andromache (178) might also be included among those for which ϕ exceeds 20° , in addition to the two named in the note—*Eva* and *Istria*, its excentricity being 0.348 (Watson).

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