window on the north-west sides of the houses and cottages was destitute of glass—not merely broken, but the whole driven through. Two greenhouses were completely smashed, only one pane in some miraculous way having escaped on the windward side. A bird-cage hanging in a window was demolished, and the bird found in a chair on its back under a bit of glass. Rooks and pigeons were lying about the fields dead and dying, and one of my men secured enough for a rook pie next day. Also we picked up next day some half-dozen small birds while turning over about eight acres of hay.

A stable roof covered by pantiles half-an-inch thick had half the tiles broken into quite small pieces, and has the appearance of having been shot at by rifles. Several chimney stacks had been blown on to the roofs, and in one case close by, through the house to the ground. All the farm buildings and cottages were unroofed more or less.

Trees had fallen in quantity, either torn up by the roots or broken off in the middle. Branches had been twisted off everywhere and hardly a leaf remained; the neighbouring common was beaten down as if an army had stampeded over it.

The crops presented a curious and melancholy sight. The grass intended for hay looked as if a steam-roller had been over it. The oats had also been not only beaten flat, but broken off short, and reduced to a sort of long chaff; in some cases the ends of a piece of stem stuck up, while the middle had been driven into the ground by a hailstone.

The mown ground and the lawn were indented to the depth of from one to two inches all over, much as if a flock of sheep had passed over them. This was, of course, also seen on the flower-beds and mangold-fields. This last crop has also been destroyed to the extent of two-thirds, every leaf broken off, and often the root in two pieces.

A hedge at right angles to the storm and some wall fruit were completely stripped of leaves and twigs, and left with "bare poles" nearly half denuded of bark; not a vegetable remains in the garden. Luckily the area of greatest severity was very small and not in the centre of the storm. The advancing front of the worst part seems to have been only about a mile in width, and to have spent its greatest energy after advancing a like distance.

The hailstones were in appearance a conglomerate of smaller ones cemented together with ice, and generally the centre stone was bigger than the others. They were much collected together in corners, and one was measured, twenty-four hours after the storm, four and a half inches round. SHEFFIELD NEAVE.

Ingatestone, June 28.

On Mimicry.

DR. JORDAN'S suggestion (p. 153) that the result of a one-sided selection involves a physiological one-sidedness unfitting a mimetic species in other respects for the struggle for existence, can hold good only if the selective change in external imaginal characters be correlated with an unfavourable modification of other characters, perhaps in another stage of the insect's life; inasmuch as destruction can modify a species solely in respect to the constants for which it is selective.

Unless such correlation can be shown to exist, the physiological one-sidedness postulated by Dr. Jordan remains as hypothetical as are still many of the axioms on which the existing theories of mimicry are supported.

His objection is precisely analogous with another which is sometimes advanced: that the process of selection towards mimetic resemblance of the imago is rendered nugatory by means of the enormous destruction of individuals in the early stages, and the consequent survival of a very small percentage to hand on the greatly diluted effects of selection. But if the imagos of a mimetic species are distributed about a mean in respect of the degrees of likeness to a model, it is clear that no amount of unselective destruction, *i.e.* one which reduces the numbers uniformly on each side of the mean, can modify the curve of distribution.

That is, no loss of larvæ or pupæ can lessen the force of imaginal selection, unless there be correlation of characters.

Dr. Jordan's suggestion, however, is complementary to one at which I have arrived, but which I have hitherto put forward only privately. Even if there be no correlation of characters, as he assumes, a limitation upon the numbers of a mimetic species may yet be due to interrelation between its abundance and the natural checks upon its multiplication.

If a species, hitherto non-mimetic and persisting in small but constant numbers, come under the influence of a "protected" model, and the distribution of mimetic forms shows that such a phenomenon has probably been common, it must escape destruction in the imago stage in proportion to the degree of resemblance thereby acquired.

If the natural checks on its earlier stages remain constant in ratio, the mimic must become increasingly numerous concomitantly with increase of likeness to the model, the effect on which, though important, need not now be discussed.

But it is possible that, apart from any physiological modifications, the greater abundance of the imago is counteracted by increased destruction in other stages. While the effect of climate, for example, is presumably constant in ratio whether the species be few or numerous in examples, it is almost certain that within limits such important checks as animal parasites (Ichneumonidæ, &c.) become actually more efficient with multiplication of the host. In other words the number, say, of larvæ which can exist in a given area may be limited by such outside causes; so that no amount of lessened destruction of the imago can cause the species to become more numerous, because it is counterbalanced by greater larval destruction. And if the species has a greater chance of survival in the imago stage, it may actually become rarer therein as a result of the necessity that the number of larvæ shall remain constant.

If this be the case, mimicry may indeed be the outcome of natural selection; but, as Dr. Jordan suggests, it may have nothing to do with utility or the survival of the species.

And this leads to a further generalisation: it is conceivable, and indeed probable, that many species can exist indefinitely in small but constant numbers, as rarities, that is, which are unable by the assumption of any favourable modifications to become permanently common, owing to the interrelation of the factors which impose a limit on their multiplication.

June 19. WALTER F. H. BLANDFORD.

A Bacterium living in Strong Spirit.

IT is well known that the shipments of rum from Demerara, especially during the past year, have been "faulty," and very great pecuniary loss has resulted to the colony. Through the kindness of a friend and the courtesy of the Excise authorities, we received certain samples direct from a bonded warehouse; we were informed that the spirit had been returned at 42 per cent over proof, equivalent to 74·6 per cent. alcohol by weight; our determinations showed the assessment to be correct. On microscopical examination of a sediment at the bottom of the samples, using a magnification of 1200 diameters, we found chains of small cocci; after the spirit had been kept for some days the cocci were seen to be surrounded with a gelatinous envelope, and after a further interval of time the cocci were found disseminated throughout the liquid, and were rapidly developing and multiplying. The micro-organism, adopting the classification of Zopf, belongs to the group Coccaceæ, and for the present, from our study of cultivations, we are inclined to regard it as a new species; we have already obtained several stages of its life-history, and hope shortly to be in a position to publish a fuller account of its development and the chemical changes which it produces. Meanwhile, the observation of the existence and multiplication of any micro-organism in a spirit of such alcoholic strength appears to be of so much scientific interest, and the problem of its presence of such technical importance, that we send this note as a preliminary communication.

Oxford, June 23. V. H. VELEY.
LILIAN J. VELEY.

A Well-known Text-Book of Chemistry.

YOU have thought proper to admit to your columns a long and rambling notice of my "Manual of Chemistry," by Mr. M. M. Pattison Muir. It is difficult to make out from this what, definitely, is the charge which the writer brings against the book, but the article winds up with the statement that in his opinion "this book is not a success." I have the satisfaction of believing that chemists will derive little except amusement from this expression of Mr. Muir's opinion; but, as presumably NATURE is read by a portion of the general public and by some scientific persons who may not be acquainted with Mr. Muir's chemical idiosyncrasy, I desire to say, more in the interests of