

to the agriculturist, but also to the practical cultivator, whether of field or garden crops. The persistent energy with which Miss Ormrod and her co-workers have subjected these beetles, the result of which is the full and elaborate report before us, is worthy of all praise. It is extraordinary to learn that for the coming year a large number of fresh observers have promised their help, and with the hope that this notice may induce some of our readers to communicate their own experiences to Miss Ormrod at Dromer Lodge, Spring Grove, Isleworth, we may perhaps mention the following as a guide to the kind of information required:—

1. Any notes as to the extent of insect injury, and estimated pecuniary loss from such.

2. Smallest found of practical use in checking such ravages.

3. Any notes of coincident circumstances such as of weather influences, or surroundings, or state of the soil which may increase or diminish insect attacks.

It is pointed out that even the shortest notes are valuable when related with others, and the importance of noting down the circumstances in which they occur is also impressed upon observers.

JAMES R. JACKSON

#### LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither are he nor his printer to answer for any opinions held by the writers of rejected manuscripts. He will not be held of any responsibility in consequence.]

[The Editor especially requests correspondents to keep their letters as short as possible. The pressure on his office is so great that it is impossible otherwise to ensure the appearance even of one correspondence containing interesting and novel facts.]

#### The Density of Chlorine

DR. MARIN, vol. vi. p. 305, my friend, Mr. F. D. Brown, argues that the low density of chlorine at high temperatures may be explained on the assumption that it undergoes decomposition in the case of the equation  $Cl_2 = 2Cl$ , thereby causing a expansion, made by Mallet in a communication to the French Academy shortly after the publication of V. and C. Meyer's first paper.

A few days ago it might have been said that, however probable such an explanation might appear to be on general grounds, there was nothing in the Meyer's observations to justify it, unless the alternative hypothesis that the chlorine underwent decomposition into ethereal chloro-hydrocarbons. On the contrary, taking into account Meyer's observations on iodine, which by reason of their greater number may be regarded as furnishing more conclusive testimony than the more limited notes with chlorine, there was apparently distinct evidence in favour of the latter view. The dilatation of iodine, according to Meyer, takes place within a range of about  $200^{\circ} C$ , between  $100^{\circ}$  and  $300^{\circ}$ , and a further increase of nearly  $100^{\circ}$  is practically without effect; whereas had the change been of the character indicated by Mr. Brown, a further dilatation in density ought to have been observed.

A recent communication to the French Academy by Crafts and Meier, however, materially advances the discussion. These observers maintain that Meyer's estimates of temperature are made by the ebullometric method with a platinum thermometer, and that, in fact, the highest temperatures reliable with the French gas-thermometer (determined by an air-thermometric method, at  $1,000^{\circ}$  instead of about  $1,170^{\circ}$ ). They have also obtained a considerably lower value for the density of iodine at the highest temperature of the furnace, the quotient of the observed density  $D_1 = 0.0045$  by the observed density being 1.05 for their highest observation, and 1.04 for Meyer's. Their results are as follows:—

Temperature.			Density.	
400	—	—	0.70	0.775
500-550	—	—	0.74	0.81
1,000-1,050	—	—	0.80	0.875
1,100	—	—	0.80	0.87
1,200	—	—	0.79	0.86

Should it ultimately be proved that the molecules of the halogens are not diatomic, our present views regarding phenomena such as the unusual state and the influence of light in inducing hydrogen and chlorine to enter into reaction will rest with much support; the appeal as to their elementary nature will then be entirely thrown on the spectroscopic method.

London Institution, April 10

HENRY C. ANSTON

#### The Great Shell Mounds

I HAVE received the enclosed letter from Prof. Meier, with a request that I should forward it to you. I hope that it may be published, for the article in *Nature* to which it refers seemed to me to do very great justice to Prof. Meier's work. I refer more especially to the evidence adduced by him as corroborated by the earliest inhabitants of Japan—in their ethnographic sketches—as their degree of skill in carving art—and beyond all other points, on the change in the molluscan fauna of the islands since the period in question.

It is a remarkable fact, which incidentally appears in Prof. Meier's monograph, that several Japanese gentlemen have already formed large collections of the shells of the Archipelago, and have cordially aided him in the investigation of the prehistoric mounds. This is a most encouraging sign of the future progress of science in Japan.

CHARLES DAVENPORT

Down, Devonshire, Kent, April 9

In *Nature*, vol. vi. p. 305, is a review of my monograph on "The Great Shell Mounds" by Prof. V. D. Brown. I do not here find the point in which it is written, nor would it seem to me worthy of notice did it not occur in the pages of your valuable and suggestive journal. The remarks in a reviewer show knowledge of the subject far beyond, Mr. Dabney, by a writer of science, beyond his ignorance of the whole matter. The extraordinary blunder is made regarding the Mounds had already been previously corrected by a Japanese gentleman residing in London. It is incredible to assume that Mr. Dabney has not lived in Japan, unless, when he would not, to compare with so many of his countrymen, the usual method of calling for the principal city of the empire by its wrong name. On the other hand, it is incredible he could have seen the Great Mounds, otherwise he would not have made such a blunder by supposing his belief was that they have been completely eroded, when in truth he saw a small portion of them here (see review). He says "The mounds consist for the most part of shells, bones, &c. at all, throughout the islands what are still found in abundance along the shores of the Gulf of Yedo." Had he taken the trouble to read the account he alluded to in order he would have seen that all the species occurring in the mounds vary in size, proportion of parts, and relative abundance of individuals from similar species living along the shores to-day. And some species extremely common in the mounds are scarcely met with the vicinity, while new species has never been found within 500 miles of Otsu; indeed, it belongs to a different geological province.

The complaint in the large number of plates given to the illustration of geology, which, too, shows how impossible for us of appreciating that part of the work which has occupied the highest consideration from archaeologists, namely, the presentation as far as possible an exhaustive illustration of every form of fossil and variety of ornamentation. It amounts the amount of a plate giving figures of the bones and shells, especially of the latter, which are stated to belong to various species. Had he looked at the last plate in support plate, by the way, and seen a better graphic one, to be able to be would have seen every species, with one exception, indeed, whose shells come from the neighbouring islands could be got for comparison.

I did not feel justified in comparing shell-mound bones with similar bones from Mizus, Kōchi, or Nagasaki, and the reason will be obvious to me not having the slightest familiarity with the varieties that species show in widely separated localities.

