ments; of the trouble and anxiety their caprices give at home and in the workshop they have no knowledge. The organ-pipe is brought into the lecture-room, it is caused to prove what is wanted, more is not looked for; it comes like a beauty in a ballroom, dressed up to play a part and be amiable and gracious: the practical man knows that organ-pipes are very like human beings, of whom Goethe says, "We do not learn to know people when they come to us; to learn their real peculiarities we must go to them."

April 18 HERMANN SMITH

Rock Inscriptions of Brazil

BEING unable to attend the reading of Mr. Whitfield's paper, at the Anthropological Institute, April 22, the following observations are offered.

The rock inscriptions of Brazil are worthy of attention, because they appear to belong to a vast series, to which Mentone affords a large contribution. The suggestion that in the very earliest epochs tally records existed, lends interest to the investigation. It appears probable that military tallies of the levy of men preceded the registers in the historical period of the tribute of men, arms, and money by provinces, such as we find in Herodotus with regard to Persia.

In reference to the possible general connection of such inscriptions as these with the eastern world, it may be observed that Brazil has participated in at least two great migrations.

The Kiriri and Sabuyah of Bahia are allied by language to the ancient Pygmean or Negrito stock. This race is everywhere very low, and cannot have produced even these inscriptions.

The greater part of Brazil is covered by the Guarani or Tupi (Agua) languages allied to the Agau of the Nile region, the Avkhass of Caucasia, &c. It is worth inquiry whether the Mentone inscriptions may not belong to this epoch.

HYDE CLARKE

Abnormal Coloration in Fish

SEEING Mr. W. S. Kent's letter on this subject in NATURE of the 8th inst., a similar instance was recalled to my memory. About three weeks ago I observed in a fishmonger's shop a plaice, nearly one third of the under side of whose body (at the tail) had the usual colour and orange spots of the upper. In this specimen the spots were more numerous and brilliant than usual. The line of demarcation was irregular, but abrupt. The circumstance struck me because I have seen great numbers of Pleuronectidæ, but never one marked thus. The fishmonger told me that he had never seen a like specimen.

ARTHUR NICOLS

Phosphorescence in Wood

FROM the description given by your correspondent, Richard M. Barrington (vol. vii. p. 464) of phosphorescence in coniferous wood, I should imagine it to be extremely probable that the pieces of Scotch fir in question were infested with the spawn of *Polyporus annosus* Fr., a fungus very common on the Coniferæ. The mycelium of this plant (as well as the perfect fungus) is well known to be at times highly phosphorescent, and in the *Gardener's Chronicle* for September 28, 1872, I have figured the perfect state of it as seen so commonly in a luminous condition in the coal mines of Glamorganshire. In these deep pits the spawn of this fungus ramifies about the old shoreing timber, and is so highly phosphorescent as to be clearly seen from a distance of twenty yards. Many other fungi with their mycelia are known to be at times phosphorescent, as *Polyporus sulfureus* Fr. and *Corticium cæruleum* Fr., both common on decaying wood.

In the *Gardener's Chronicle* for September 21, 1872, the Rev. M. J. Berkeley has published a remarkable case of phosphorescence in logs of larch. Here the most luminous parts were where the mycelium was most developed, and the wood gave out such a blaze of white light that although the pieces were wrapped in five folds of paper, yet the light shone through as if the specimens were exposed. The phosphorescence appears to accompany the decomposition of the wood on which the fungi at the same time prey.

W. G. SMITH

Coincidence of the Spectrum Lines of Iron, Calcium, and Titanium

IN Prof. Young's letter published in NATURE, vol. vii., p. 17, some coincidences of the lines of different substances which "are too many and too close to be all the result of accident" are referred to, those of iron with calcium and titanium being especially cited. Two explanations are offered, first that "the metals operated upon by the observers who first mapped out the spectra were not absolutely pure," and second, that "there is some such similarity between the molecules of the different metals as renders them susceptible of certain synchronous periods of vibration."

If we are driven to this second explanation the received inductions of spectrum analysis and the deductions of celestial chemistry based upon them are shaken at their foundation, for if more than one known terrestrial element can display identical lines in the spectrum, the suggestion that other unknown celestial elements may do the same is freely opened. It is therefore very desirable that the spectroscopist should receive all the aid which the studies of chemical specialists can afford him towards the solution of this problem.

I may venture to speak to the instances quoted by Prof. Young. First as regards calcium and iron. In making analyses of a large number of brands of pig iron I found that they all contained calcium, but in very variable proportions, and endeavoured by observing their properties, and by further examination of finished iron, to learn how the presence of calcium affected the quality of iron, but failed to solve this problem. In the course of these investigations, I found that the finished iron, like the pig, presented considerable variations as regards the quantity of calcium contained in it, *but I never found a sample of iron or steel quite free from some trace of calcium.* As I was operating for the most part on superior qualities of iron which had been submitted to the utmost practicable degree of commercial purification, this experience renders it extremely probable that Prof. Young's first explanation is the correct one, so far as iron and calcium are concerned.

The want of any chemical reagent by which minute traces of titanium can be detected in the presence of large quantities of iron, or of a means of completely separating these metals, places a serious difficulty in the way of directly answering the question whether iron is usually associated with traces of titanium; but there are indirect evidences of its very common existence in ordinary iron. The most decided of these is afforded by the common, almost universal, occurrence of the beautiful copper-coloured crystals of cyano-nitride of titanium in the hearth bottoms of blast-furnaces. In many cases their concretions form large masses, where the ores that have been used are not supposed to be titaniferous.

Metallic iron obtains impurities, not only from its ore, but also from the fuel and flux used in reduction, and besides these from the furnace or crucible in which it has subsequently been fused or raised to its welding point. The difficulty of completely purifying iron is so great that many such coincidences as those referred to may be expected *a priori*.

W. MATTIEU WILLIAMS

Musical Stones

WHEN roaming over the hills and rocks in the neighbourhood of Kendal, which are composed chiefly of mountain limestone, I have often found what we call here "musical stones." They are generally thin flat weather-beaten stones, of different sizes and peculiar shapes, which when struck with a piece of iron or another stone, produce a distinct musical tone, instead of the dull heavy leaden sound of any ordinary stone. The sound of these stones is, in general, very much alike, but I know gentlemen who possess sets of eight stones which are said to produce, when struck, a distinct octave. Being only an amateur geologist, I am unable to account for this fact, and would be glad if any of your numerous readers would take the trouble to explain to me, through the medium of your columns, the peculiar composition of the stone in question, and the distinct qualifications necessary to form a musical stone.

RICHARD J. NELSON

Acquired Habits in Plants

IN NATURE of May 1, p. 7, which I chance not to have seen till now, Mr. Babbington puts a question on the subject of my climbing specimen of violet which I fear I am not botanist enough to answer.