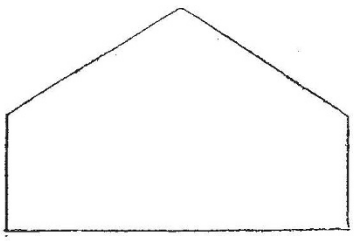
of success. After many experiments with rockers of different sizes and angles, Mr. Spice obtained a formula by which a perfectly satisfactory rocker can be constructed, as several trials since then, both in America and Europe, have convinced me. Believing that there are many other professors who feel interested in this matter I communicate to the readers of NATURE, at Mr. Spice's request, his analysis of the rocker.



Let A B C D be the principal section of the rocker. Draw an indefinite base-line through the points C and D. From the point B let fall the perpendicular B E, and from F the perpendicular F D.

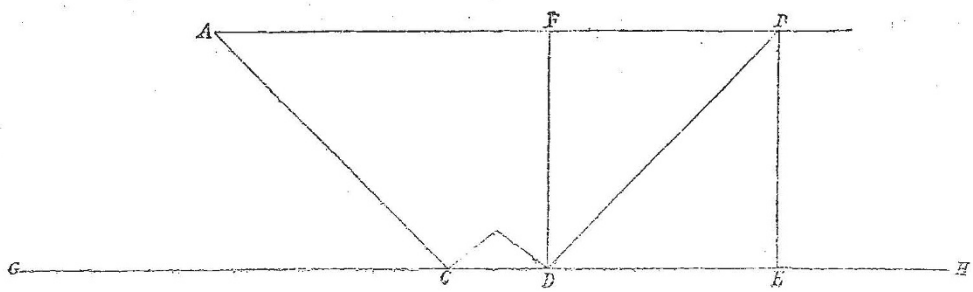
When the lead support raises (by expansion) the point D the point C becomes the fulcrum, and the line D E represents the complimentary arm of an imaginary lever C D E of the third order. In proportion as the distance C D is very small in comparison with the distance D E, in a like proportion will greater force be required to raise the rocker, and *vice versa*.

By experiment on a right-angled prismatic rocker (*i.e.* if the lines A C and B D be produced the angle at their intersection would be a right-angle) it was found that the most certain and pleasing effect was obtained when the distance C D was to the distance D E as 2 : 5.

In the case of a right-angled rocker as above, of course the distance D E = the distance D F.

By making the rocker-angle less than a right-angle, the distance D F would exceed the distance D E. This, it is believed, would be an advantage, as the leverage would remain constant and the additional weight would have the effect of raising the note.

The length of the rocker should be equal to twice A B. The length of the handle should be four times A B. Finally, in practice, the angles C and D are slightly flattened, by filing, to prevent adhesion to the lead by sinkage, also to gain a larger heating surface.



The lead should have the form shown in the section below, and should weigh from three to four pounds.

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No Butterflies in Iceland

A FEW months ago, at a meeting of the Linnean Society, Mr. McLachlan, when speaking of the various species of butterflies brought to England from the far north by the last English Arctic expedition, mentioned incidentally that there were no butterflies in Iceland.

On looking up some old books on the subject, in which I had the most able assistance of Mr. Erickr Magnussen, of Cambridge, we found at folio 602 of a book entitled, Olaffson (Eggert) Reise giennem, Island. Sorö, 1772.

LEPIDOPTERA.

L. phalænæ.
,, *maxima.*
,, *fluctuata.*
,, *geometra.*
,, *tota aurea.*

Again, in a work by R. Mohr, 1786, folios 90–91, under the head "Lepidoptera," we have—

L. phalænæ.
,, *graminis.*
,, *betularia.*
,, *oleracea.*
,, *lucerina.*
,, *vaccinii.*
,, *fluctuata.*
,, *pratella*, &c., &c.,

all of which are named as butterflies of Iceland.

Mr. McLachlan is a very high authority, and not at all likely to assert as a fact that there are *now* "no butterflies in Iceland," unless it were true.

The only possible way in which these perfectly opposite authorities can be reconciled (unless we throw aside those of a hundred years ago as worthless), is to suppose that in the interval the butterflies and their larvæ have been destroyed—not an impossible circumstance in Iceland, which has been almost, if not wholly, covered with poisonous volcanic ashes from time to time.

JOHN RAE

Kensington, January 18

The Great Pyramid

I HAVE been reading in Mr. Piazzi Smyth's book on this subject ("Our Inheritance," &c.). From the measurements made or cited by the author it appears tolerably clear that if the vertical height of the pyramid, as originally built, be taken as 1, the total length of the four base lines will be twice 3·14159, &c., the number which expresses the circumference of a circle whose diameter is 1. At first sight this statement seems startling, but I think it may readily be acceded to, and that neither Mr. P. Smyth nor anyone need believe that by inspiration or otherwise, the architect knew the above relation of diameter to circumference, or was a circle-squarer in any special sense. I conceive the architect to have done something like the following:—Deciding first upon the vertical height of his intended pyramid, he took a cord, equal in length to that vertical height, and with it as a radius described a circle on level ground. Along the circumference of this circle he laid another cord, the ends of which met and were fastened together. The circle being thus formed, he drove four pegs, at equal distances inside the cord, so as to stretch it out into a square. The square thus formed gave the lines for the base of the pyramid; and it is obvious that thus the ratio of diameter to circumference would necessarily be built into the pyramid, however ignorant the architect might be. Working drawings (actual size) of surfaces, angles, chambers, passages, and other things would easily be laid out on the ground. The dimensions of the so-called King's chamber, and of a coffer or stone chest therein, which appear to involve the above ratio of 1 to 3·14159, &c., were, I think, arrived at by a somewhat similar process of construction.

Now as to the religious aspect of the case and an easy bit of "development." A cone is a well-known ancient religious symbol (of the kind denounced by Mr. P. Smyth as unclean),