

**Note on the Characteristic of a Logarithm.**—

Students might be reminded that a number consists of so many digits, the value of each of which depends on its position. The values might be written above the separate digits just as we write £ s. d. over money columns. Thus, 523·7046 would be written

$10^2$	$10^1$	$10^0$	$10^{-1}$	$10^{-2}$	$10^{-3}$	$10^{-4}$
5	2	3	7	0	4	6

*Rule for finding Characteristic.*—The characteristic is the index of the power of 10 placed over the first significant digit in the number.

It may easily be found by counting the number of places which the first significant digit lies left or right of the units digit.

*Rule for finding position of Decimal Point in a number whose logarithm is given.*—After the anti-logarithm has been written down, place the pencil point after the first digit, then move the pencil right or left through the number of places indicated by the characteristic (+ signifies move to the right, - move to the left).

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**Two Illustrations of Newton's Third Law.**—I. *Statical.*—

The first body A, say a wooden block, is suspended by a rubber cord (R) and a spring balance (S) from a fixed support. A copy of the scale is taken on paper, inverted and gummed on so that the zero is opposite the index when the block A hangs freely.

It is clear that if A be pushed from below, the upthrust will be registered by the balance.

The second body B, say a second block, is placed on the top of a Salter's Family Scale, and the index adjusted to read zero.

It is clear that any downward force exerted on B will be registered by the scale (F.S.).

The upper system is now lowered till A and B act on one another.

The *upthrust* on A (by B) registered by the spring balance will always be equal to the *downthrust* on B (by A) registered by the Family Scale.

The india-rubber connection enables us to take various readings.

The support for the spring balance may conveniently be a retort stand: the scales are not necessarily interfered with, as readings can be taken by difference: the second block (B) may be replaced by a beaker of water.