

Badische Landesbibliothek Karlsruhe

Digitale Sammlung der Badischen Landesbibliothek Karlsruhe

The young man's book of amusement

Halifax, 1848

Another

[urn:nbn:de:bsz:31-100120](https://nbn-resolving.org/urn:nbn:de:bsz:31-100120)

dually loosing itself in obscurity ; and be found well worth the pains bestowed on its construction.

Pleasing Optical Appearance.

If a soap-bubble be blown up, and set under a glass, so that the motion of the air may not affect it, as the water glides down the sides, and the top grows thinner, several colours will successively appear at the top, and spread themselves from thence in rings down the sides of the bubble, till they vanish in the same order in which they appeared. At length a black spot appears at the top, and spreads till the bubble bursts.

The thinnest substance ever observed is the aqueous film of the soap bubble previous to bursting ; yet it is capable of reflecting a faint image of a candle, or the sun. Hence its thickness must correspond with what Sir Isaac Newton calls the *beginning of black*, which appears in water at the thickness of the seven hundred and fifty thousandth part of an inch.

Another.

A convex and concave lens, of nearly the same curvature, being pressed closely together, exhibit rings of colours about the points where they touch. Between the colours there are dark rings, and, when

the glasses
spot is dark.

The prin
flecting pla
reflecting
ly polished
tude, but
to ten or
being abo
and increa
When the
of 60, or t
at the nar
plied six ti

The fol
the numb
Suppos
pieces of
each min
432,880,80
the immen
ducing.
and make

the glasses are very much compressed, the central spot is dark.

The Kaleidoscope.

The principal parts of the Kaleidoscope are two reflecting planes made of glass or metal, or any other reflecting substance, ground perfectly flat, and highly polished. These reflectors may have any magnitude, but in general, they should be from four or five to ten or twelve inches long, their greatest breadth being about an inch when the length is six inches, and increasing in proportion as the length increases. When these two plates are put together at an angle of 60, or the sixth part of a circle, and the eye placed at the narrow end, it will observe the opening multiplied six times, and arranged round the centre.

Changes of the Kaleidoscope.

The following curious calculation has been made of the number of changes this instrument will admit.

Supposing the instrument to contain twenty small pieces of glass, &c. and that you make ten changes in each minute, it will take the inconceivable space of 462,880,899,576 years, and 360 days to go through the immense variety of changes it is capable of producing. Or, if you take only twelve small pieces and make ten changes in each minute, it will then