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The young man's book of amusement

Halifax, 1848

The following interesting Account of the Echo will be, no doubt, amusing
to the reader

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main in the same place, it inclosed in a second case, made of thick wood, and placed at a little distance from the other. When you want it to perform, it will only be necessary to throw open the door of the outer case, and expose it to the sun.—But if the machine be moveable, it will perform in all seasons by being placed before the fire; and in winter, it will more readily stop when removed into the cold.

The following interesting Account of the Echo will be, no doubt, amusing to the reader.

An echo is a reflection of sound striking against some object, as an image is reflected in a glass: but it has been disputed what are the proper qualities in a body for thus reflecting sounds. It is in general known, that caverns, grottos, mountains, and ruined buildings, return this image of sound. There is a very extraordinary echo, at a ruined fortress near Louvain, in Flanders. If a person sung, he only heard his own voice, without any repetition: on the contrary, those who stood at some distance, heard the echo but not the voice; but then they heard it with surprising variations, sometimes louder, sometimes softer, now more near, then more distant. There is an account in the Memoirs of the French Academy, of a similar echo near Rouen. As every point against which the pulses of sound strike, becomes the centre of a new series of pulses, and sound describes equal distances in equal times; therefore, when any sound

is propagated from a centre, and its pulses strike against a variety of obstacles, if the sum of the right lines drawn from that point to each of the obstacles, and from each obstacle to a second point be equal, then will the latter be a point in which the echo will be heard. Hence all the points of the obstacles which produce an echo, must lie in the surface of the oblong sphaeroid, generated by the revolution of the ellipse round its major axis.

But though the first reduced pulses may produce no echo, both on account of their being too few in number, and too rapid in their return to the ear; yet it is evident, that the reflecting surface may be so formed, as that the pulses which come to the ear after two reflections or more, may, after having described 127 feet or more, arrive at the ear in sufficient numbers, and also so nearly at the same instant, as to produce an echo, though the distance of the reflecting surface from the ear be less than the limit of echoes. This is confirmed by a singular echo in a grotto on the banks of the little brook, called the Dinan, about two miles from Castlecomber, in the county of Kilkenny. As you enter the cave, and continue speaking loud, no return of the voice is perceived; but, on your arriving at a certain point, which is not above fourteen or fifteen feet from the reflecting surface, a very distinct echo is heard.

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