The young man's book of amusement

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Sonorous Properties of different Gases

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might have been expected that the sound in hydrogen gas would be feebler than when produced in atmospheric air in similar circumstances. Mr. Leslie, however, has found the difference to be actually much greater. Having placed within a receiver of an air-pump, a small piece of clock-work, by which a bell was struck every half minute, the air was rarefied, and after the re-action had been carried the length of one hundred times, hydrogen gas was introduced. The sound, however, so far from being augmented, was, at least, as feeble as in atmospheric air of that extreme rarity, and decidedly much feebler than when formed in air of its own density, or rarefied ten times. Mr. Leslie likewise observed the very curious fact, that the mixture of hydrogen gas with atmospheric air, has a predominant influence in blunting or stifling sound. When one half of the volume of atmospheric air is extracted, and hydrogen gas admitted to fill up the vacant space, the sound will now become scarcely audible: an effect which he ascribes to a want of intimate combination between the gases, which causes the pulsatory impressions to be dissipated before the sound is originally formed.

Sonorous Properties of different Gases.

By causing a small tin pipe, brought into contact with a cock in the neck of a bell glass, to be blown by gas contained in a bladder applied to the external aperture of the cock, it will be observed, that the

sound is a semitone lower with azotic and oxygen gas than with atmospheric air, a third lower with carbonic acid gas, and nearly the same with nitrous gas; but with oxygen gas, from nine to eleven tones higher than the air that surrounds us. A mixture of azote and oxygen, in the same proportion as in the atmospheric air, will give the same tone as the latter; but when the mixture of these gases is not uniform, the sounds are totally discordant.

When a plate of glass is agitated by means of a bow, if some dust is strewed over the glass, the former will appear to have arranged itself symmetrically, after the plate ceases to emit sound. Under the like circumstances, the figures are always the same, their changes depending only upon the gravity or acuteness of the tone.

Musical Figures resulting from Sounds.

Cover the mouth of a wide glass, having a footstalk with a thin sheet of membrane, or vegetable paper, over which scatter a layer of fine sand. The vibrations excited in the air by the sound of a musical instrument, held within a few inches of the membrane, will cause the sand on its surface to form regular lines and figures with astonishing celerity, which vary with the sound produced, affecting a particular mode of division, according to the number of vibrations.