

rubber were to be enclosed in a space that it just filled, so as not to permit its parts to yield laterally, doubtless it would resist actual compression with great violence. Here, then, we have an instance of two kinds of elasticity in one substance; a feebler effort of recovery from distorted figure, and a more violent one from a state of altered dimension. Both, however, originate in the same causes, and are referable to the same principles; the former being in fact only a modified case of the latter, as the effort of a steel spring, when bent, to recover its former shape, is referable to the same forces which give to steel its hardness and strength to resist actual compression and fracture.

(259.) The toughness of a solid, or that quality by which it will endure heavy blows without breaking, is again distinct from hardness, though often confounded with it. It consists in a certain yielding of parts with a powerful general cohesion, and is compatible with various degrees of elasticity. Malleability is again another quality of solids, especially metals, quite distinct from toughness, and depends on their capability of being deprived of their figure without an effort to recover it and without fracture.

(260.) Tenacity, again, is a property of solids more directly depending on the cohesion of their parts than toughness. It consists in their power of resisting separation by a strain steadily applied, while the quality of toughness is materially influenced by their disposition to communicate through their substance the jarring effort of a blow. Accordingly, the tenacity of a solid is a direct measure of the cohesive attraction of its parts, and is the best proof of the existence of such a power

Crystallography.

(261.) It cannot be supposed that these and many other tangible qualities, as they may be called, should subsist in solids without a corresponding mechanism in their internal structure. That they have such a mechanism, and that a very curious and intricate one, the phe-