

or assuming, at their contact with solids, certain curvilinear forms, which are susceptible of precise mathematical determination. In different circumstances, again, we behold these particles suddenly changing their places, marshalling themselves in symmetric order, and constructing by their union solid crystals of determinate figure, having all their angles and facets shaped with mathematical exactness.

The forces by which dissimilar particles are united into a chemical compound have been termed *Chemical affinities*; and the operation of these peculiar forces is as definite and determinable as the former. They are now known to be regulated by the law of definite proportions; a law, the discovery of which has conferred on Chemistry the same character of precision which appertains to the exact sciences, and which it had never before attained. The phenomena of Light, of Heat, of Electricity, and of Magnetism have been, in like manner, reduced to laws of sufficient simplicity to admit of the application of mathematical reasoning, and to furnish the accurate results derived from such application.

Thus, to whatever department of physical science our researches have extended, we every where meet with the same regularity in the phenomena, the same simplicity in the laws, and the same uniformity in the results. All is strictly defined, and subjected to rigid rule: all is subordinate to one pervading principle of order. The great Creator of the universe has exercised in its construction the severest and most refined geometry, has traced with unerring precision the boundaries of all its parts, and has prescribed to each element and each power its respective sphere and limit.

Far different is the aspect of living Nature. The spectacle here offered to our view is every where characterized by boundless variety, by inscrutable complexity, by perpetual mutation. Our attention is solicited to a vast multiplicity of objects, curious and intricate in their mechanism, exhibiting peculiar movements, actuated by new and unknown powers, and gifted with high and refined endowments. In place of the simple combinations of elements, and the sim-