

Without, then, deciding upon this theory, we may venture to say that it is wanting in all the prominent and striking characteristics which we have found in those great theories which we look upon as clearly and indisputably established.

*Conclusion.*—We may observe, moreover, that heat has other bearings and effects, which, as soon as they have been analysed into numerical laws of phenomena, must be attended to in the formation of ther-motical theories. Chemistry will probably supply many such; those which occur to us, we must examine hereafter. But we may mention as examples of such, MM. De la Rive and Marcet's law, that the specific heat of all gases is the same;<sup>11</sup> and MM. Dulong and Petit's law, that single atoms of all simple bodies have the same capacity for heat.<sup>12</sup> Though we have not yet said anything of the relation of different gases, or explained the meaning of *atoms* in the chemical sense, it will easily be conceived that these are very general and important propositions.

Thus the science of Thermotics, imperfect as it is, forms a highly-instructive part of our survey; and is one of the cardinal points on which the doors of those chambers of physical knowledge must turn which hitherto have remained closed. For, on the one hand, this science is related by strong analogies and dependencies to the most complete portions of our knowledge, our mechanical doctrines and optical theories; and on the other, it is connected with properties and laws of a nature altogether different,—those of chemistry; properties and laws depending upon a new system of notions and relations, among which clear and substantial general principles are far more difficult to lay hold of, and with which the future progress of human knowledge appears to be far more concerned. To these notions and relations we must now proceed; but we shall find an intermediate stage, in certain subjects which I shall call the *Mechanico-chemical* Sciences; viz., those which have to do with Magnetism, Electricity, and Galvanism.

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<sup>11</sup> *Ann. Chim.* xxxv. (1827.)

<sup>12</sup> *Ib.* x. 397.