

illustrates? What chemical doctrine rests for its support on the phenomena of gunpowder, or glass, or steel? What new harmonical truth was illustrated in the Gregorian chant? What mechanical principle unknown to Archimedes was displayed in the printing-press? The practical value and use, the ingenuity and skill of these inventions is not questioned; but what is their place in the history of speculative knowledge? Even in those cases in which they enter into such a history, how minute a figure do they make! how great is the contrast between their practical and theoretical importance! They may in their operation have changed the face of the world; but in the history of the principles of the sciences to which they belong, they may be omitted without being missed.

As to that part of the objection which was stated by asking, why, if the arts of our age prove its scientific eminence, the arts of the middle ages should not be received as proof of theirs; we must reply to it, by giving up some of the pretensions which are often put forwards on behalf of the science of our times. The perfection of the mechanical and other arts among us proves the advanced condition of our sciences, only in so far as these arts have been perfected by the application of some great scientific truth, with a clear insight into its nature. The greatest improvement of the steam-engine was due to the steady apprehension of an atmological doctrine by Watt; but what distinct theoretical principle is illustrated by the beautiful manufactures of porcelain, or steel, or glass? A chemical view of these compounds, which would explain the conditions of success and failure in their manufacture, would be of great value in art; and it would also be a novelty in chemical theory; so little is the present condition of those processes a triumph of science, shedding intellectual glory on our age. And the same might be said of many, or of most, of the processes of the arts as now practised.

2. *Arabian Science*.—Having, I trust, established the view I have stated, respecting the relation of Art and Science, we shall be able very rapidly to dispose of a number of subjects which otherwise might seem to require a detailed notice. Though this distinction has been recognized by others, it has hardly been rigorously adhered to, in consequence of the indistinct notion of *science* which has commonly prevailed. Thus Gibbon, in speaking of the knowledge of the period now under our notice, says,<sup>1</sup> "Much useful experience had been acquired in

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<sup>1</sup> *Decline and Fall*, vol. x. p. 43.