which it has collected there, it then delivers itself up to its own processes—first ascending analytically from observed phenomena to principles, and then descending synthetically from principles to yet unobserved phenomena. We cannot but recognise it as an exquisite adaptation between the subjective and the objective, between the mental and the material systems—that the results of the abstract intellectual process and the realities of external nature should so strikingly harmonize.* It is exemplified in all the sciences, in the economical, and the mental, and the physical, and most of all in the physico-mathematical—as when Newton, on

* There are some fine remarks by Sir John Herschel in his preliminary discourse on the study of Natural Philosophy on this adaptation of the abstract ideas to the concrete realities, of the discoveries made in the region of pure thought to the facts and phenomena of actual nature—as when the properties of conic sections, demonstrated by a laborious analysis, remained inapplicable till they came to be embodied in the real masses and movements of astronomy.

"These marvellous computations might almost seem to have been devised on purpose to show how closely the extremes of speculative refinement and practical utility can be brought to approximate." Herschel's Discourse, p. 28.

"They show how large a part pure reason has to perform in the examination of nature, and how implicit our reliance ought to be on that powerful and methodical system of rules and processes, which constitute the modern mathematical analysis, in all the more difficult applications of exact calculation to her phenomena." p. 33.

"Almost all the great combinations of modern mechanism and many of its refinements and nicer improvements, are creations of pure intellect, grounding its exertion upon a very moderate number of elementary propositions, in theoretical mechanics and geometry." p. 63.

The discovery of the principle of the achromatic telescope, is termed by Sir John "a memorable case in science, though not a singular one, where the speculative geometer in his chamber, apart from the world, and existing among abstractions, has originated views of the noblest practical application." p. 255.