

Royal Institution, 264 ; Manchester Literary and Philosophical Society, 265 ; John Dawson of Sedbergh, 267 ; The Scotch Universities, 267 ; The Royal Society of Edinburgh, 269 ; The 'Edinburgh Review,' 270 ; The Analytical Society of Cambridge, 271 ; University life in Scotland, 271 ; The Dublin Mathematical School, 274 ; Importance of British contributions to science, 276 ; Diffusion of scientific knowledge on the Continent, 276 ; Isolation of English men of science, 277 ; Individualism of the English character, 279 ; Changes during the last fifty years, 280 ; British contributions to biology, 282 ; Jenner, 284 ; English love of nature, 284 ; Union of individualism and naturalism in England, 286 ; White of Selborne, 288 ; The Geological Society, 290 ; William Smith, 291 ; Charles Bell, 292 ; Historical Geography, 294 ; Martin William Leake, 296 ; Work of the three nations compared, 298.

CHAPTER IV.

THE ASTRONOMICAL VIEW OF NATURE.

The scientific spirit in the first and second half of the century, 302 ; Science become international, 303 ; Disappearance of national differences, 305 ; Special scientific ideas, 306 ; Philosophy of science, 306 ; Whewell's 'History' and 'Philosophy,' 309 ; Philosophy and science, 311 ; Leading scientific ideas mostly very ancient, 312 ; Mathematical spirit, 314 ; When first introduced into science, 317 ; Newton's 'Principia,' 318 ; The gravitation formula, 319 ; Lines of thought emanating from it, 321 ; Element of error, 323 ; Laplace and Newton, 326 ; Several interests which promote science, 326 ; Insufficiency of observation, 328 ; Practical interest, 328 ; Focalising effect of mathematical formulæ, 332 ; Matter and force mathematically defined, 334 ; Weight and mass, 336 ; Gravitation not an ultimate property of matter, 338 ; Attraction and repulsion, 342 ; Electrical and magnetic action, 344 ; Law of emanations, 344 ; Molecular action, 346 ; The astronomical view : Cosmical, molar, and molecular phenomena, 348 ; Special interest attached to molar dimensions, 350 ; Geometrical axioms, 352 ; Difficulty of measuring gravitation directly, 353 ; Astronomical view of molecular phenomena, 354 ; Capillary attraction, 356 ; Boscovich's extension of the Newtonian formula, 357 ; Coulomb's measurements, 360 ; Extended by Gauss and Weber, 360 ; Davy and Faraday, 363 ; Ampère and Weber develop the astronomical view, 366 ; Weber's fundamental measurements, 368 ; Necessity of developing the infinitesimal methods, 373 ; Newtonian formula the basis of physical astronomy, 375 ; The Newtonian formula unique as to universality and accuracy, 377 ; Is it an ultimate law ? 378 ; Laplace's opinion, 378 ; Opposition to the astronomical view of nature, 381.