INTRODUCTION

In a manuscript entitled *Analogia inter operationes Chemicas & naturales*, dated 1 May 1657, Henry Power wrote:

Whosoever hath seene the admirable and almost incredible effects of chimistry, wrought by their severall progressive operations of Maceration, fermentation . . . circulation, Rectification, cohobation, and the like will easily conclude that all the operations of Nature within us, are most emphatically expressed, and indeed are . . . practiced by the chymists . . ., & therefore the great and mysterious works of Concoction, chylification, Sanguification, assimilation, & cet. are most powerfully demonstrated by chymicall Analogy. For Nature the Protochymist acts in this Internall Laboratory of Man (the Body) as the Hermetical Practitioners doe externally in their Furnaces . . . "

Henry Power's notes seem to sum up the English situation neatly. The foundation of physiology upon chemical theories and experiments was a view which the majority of English physicians shared in the second half of the seventeenth century. The British physiologists' rejection of Galenic theories of humours and faculties rarely led to the adoption of a Cartesian mechanical physiology. The physiological investigations were based mainly upon chemistry. Paracelsian iatrochemistry (in particular the works of Petrus Severinus, Oswald Croll and Duchesne), as well van Helmont's and Glauber's doctrines, provided the theoretical basis for most medical research carried out in England in the second half of the seventeenth century. A crucial part in the assessment of iatrochemistry was played by the notion of spirit. Despite Harvey's apparent rejection of this notion as redundant and ambiguous, most English physiologists had recourse to spirits in explaining the main functions of the human body. This was by no means a mere restatement of the Galenic theory of medical spirits. Behind the continuity of the terminology, we find a metamorphosis of meaning in the notion of spirit. Not only did views

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about the origin of medical spirits change, but so too did the estimate of their properties and functions.

Dramatic transformations of the concept of spirits took place in Renaissance natural philosophy and medicine. An important role in this process was played by Neoplatonism, in particular by the notion spirit in Marsilio Ficino's *De Triplici Vita*.6 Scholars have stressed the importance of Jean Fernel's definition of *spiritus insitus* as a substance originating from a divine principle, a notion which was to become highly controversial: it was criticized in Jean Riolan's *Ad librum Fernelii de Spiritu et Calido Innato* (1576) and in Giovanni Argenterio's *De Somno et Vigilia libri duo* (1556) — both authors denied that spirit had celestial and divine origin.7 Discussions about the origin of spirits involved Renaissance Aristotelians as well. Controversies arose over the interpretation of a passage of Aristotle's *De Generatione animalium* which discussed the nature of semen.8 Iacopo Zabarella and Daniel Sennert clung to the view that *calidum innatum* — and *spiritus* — had a "super-elemental" nature, while Sebastiano Paparella and Cesare Cremonini taught that *calidum innatum* was the same as *calor elementaris* and firmly denied that it had a celestial origin.9

A radically new notion of spirit was proposed in the works of Paracelsus and in those of his followers. Spirits were conceived as the active agents, upon which all the principal operations in nature and in the human body depended. In the *De Natura Rerum Libri Novem* Paracelsus stated that spirits were the sources of life both in macrocosm and in microcosm. His notion of spirit is well exemplified in his *De Natura Rerum* (1537):

The life of things is none other than a spiritual essence, an invisible and impalpable thing, a spirit and a spiritual thing. On this account there is nothing corporeal, but has latent within itself a spirit and life, which, as just now said, is none other than a spiritual thing. . . . For here we should know that God, at the beginning of the Creation of all things, created no body whatever without its own spirit, which spirit it contains after an occult manner within itself. For what is the body without the spirit? Absolutely nothing. So it is that the spirit holds concealed within itself the virtue and power of the thing, and not the body. . . . Hence it is evident that there are different kinds of spirits, just as there are different kinds of bodies. There are celestial and infernal spirits, human and metallic, the spirits of salts, gems, and marcasites, arsenical spirits, spirits of potables, of roots, of liquids, of flesh, blood, bones, etc. Wherefore you may know that the spirit is in very truth the life and balsam of all corporeal things. . . . The life, then of all men is none other than a certain astral balsam, an included air, and a spirit of salt which tinges.10