

## CHAPTER ONE

# From Early Beginnings to the Twentieth Century

### Introduction

The fact that the concept of stress has, over the past six decades, been “the source of immense interest” (Doublet, 2000, p.41) should not disguise the fact that the term has steadily evolved over a period of several hundred years, if not over centuries, and “its discovery in the twentieth century was more of a rediscovery” (Cassidy, 1999, p.6). In order to explain its origins and meanings, authors have taken a number of different strategies. Some point to the possibility that the word “stress” may have been derived from the Latin *stringere* (to draw tight) and go on to explore how, over the centuries, a “large number of variant words can be found in the English literature” (Cox, 1978, p.2). Some focus on the scientific use and investigation of the term and trace this meaning back around 50 years (Jex, 1998). While others begin by tracing the scientific origins of the term “stress” to its first appearance in *Psychological Abstracts* in 1944 (Jones and Bright, 2001), or simply make the point, that while it may be difficult to accept, before the 1940s, the term was “almost unknown outside of the engineering profession” (Haward, 1960, p.185). All have unwittingly being drawn into the debate concerning not just when the term “stress” was popularized, but who was the first to popularize it (see Appley and Trumbull, 1967; Bartlett, 1998; Mason, 1975a).

Some authors, considering the evolution of the term “stress,” describe how, from the idea of hardship in the seventeenth century, it’s meaning evolved through the eighteenth and nineteenth centuries to reflect some sort of force, pressure, or strain, and how this latter sense of the word was “taken over into

science" and probably helped to reinforce its popular usage (Hinkle, 1973, p.32). However, the view that the present use of the term has "only recently emerged" as a result of it being taken over by scientists and social scientists, is a somewhat tentative conclusion to draw (Newton, 1995, p.50) – as Bartlett (1998) shows the idea that "stress" can influence health has a long history. This means that there can be "no simple privileged position of social scientists in inventing our contemporary understanding of stress" (Newton, 1995, p.50). If this is the case, then an examination of the historical origins of the word will allow us to consider whether stress is a disease of our times; whether, over the years, there has been any consistency in the use of the term; whether in some guise or another it has always been with us – hence its long history; whether whatever the "label used they have all attempted to explain some aspects of the relationship that people have with their environment" (Doublet, 2000, p.78); and whether by exploring these issues we get some insight into the social purposes the term has served (Pollock, 1988).

We begin our inquiry into the historical origins of the concept of "stress" by setting out two themes, which are not mutually exclusive, that have influenced the meaning and use of the term. The first theme is that over the centuries "various nonphysical phenomena have been advanced as either possible causes of diseases or factors contributing to diseases" (Doublet, 2000, p.41). So, at various times in history "conditions" like hysteria, passions, vapors, nerves, neurasthenia, worry, mental strain, and tension have been put forward as significant contributors of or explanations for disease (see Doublet, 2000, pp.41-79). The second theme is that these conditions carry with them the notion that "life places difficult demands on individuals, who then succumb under the strain to psychological or biological disease" (Abbott, 2001, p.37). The idea that the stresses and strains of modern life – the individuals' ability to cope with the pace of life – became an almost ritualistic belief in the nineteenth century (Abbott, 2001), and in the twentieth century the pace of life was viewed as the root cause of much illness and disease. These two themes suggest that for centuries alongside "biological medicine there has always been some kind of additional explanation of disease" (Doublet, 2000, p.77), centered around different sorts of "conditions" such as those identified above; and that despite the fact that many of these earlier "conditions"

or explanations were not entirely based on any empirical evidence, their significance lay in the way they attempted to explain illness in terms of the relationship between the person and the environment.

### **Hooke's Law and the Engineering Analogy**

A number of authors (Hinkle, 1973; Newton, 1995) indicate that there has been a fair degree of consistency in the use of the term "stress" from at least the seventeenth century onwards. "Stress" in the seventeenth century had come to mean "hardship" (Hinkle, 1973). It was towards the end of this century that the word assumed a more technical importance (Lazarus, 1993) through the writing of Robert Hooke, whose work was to result in an engineering analogy of stress. Hooke's work was concerned with how man-made structures (e.g. bridges) could be made to withstand heavy loads without collapsing (Engel, 1985; Hinkle, 1973; Lazarus, 1999). What Hooke gave us through his *Law of Elasticity* was "load," the demand placed on the structure, "stress" that area affected by the demand, and "strain" the change in form that results from the interaction between load and stress (Cox, 1978; Engel, 1985; Lazarus, 1993; 1999). Despite the difficulties involved in the transition from physics to other disciplines, the similarities of these terms with contemporary terms are startling, and reflects the influence of Hooke's work and its survival into modern times via the idea that stress is an external demand placed on a bio-social-psychological system (Lazarus, 1993).

Hooke's work represents an important episode in the history of stress (Doublet, 2000). The engineering analogy and the idea of the body as machine-like, proved to be fertile ground for two other ideas that have profoundly influenced thinking about stress. The first idea follows from the reasoning that "if the body were like a machine and machines are subject to wear and tear then so too would be the body" (Doublet, 2000, p.48). So, into the discourse on stress, came the idea of the impact on the body of the wear and tear of life (see Doublet, 2000; Selye, 1956). The second idea to emerge was that, like a machine, the body needs some energy to help it function. Depending on the amount of this energy, the body will, like a machine, perform well, poorly, or

even stop (Doublet, 2000). This energy was assumed to be a product of the nervous system, and scientists very quickly began to speak in terms of the “depletion of nervous energy” and “disorders of the nerves” (Doublet, 2000, p.49).

The seventeenth century and the writings of Descartes also left an indelible mark, if not on the concept of “stress” itself, then at least on the emerging field of psychology, the discipline of many contemporary stress researchers. Descartes’ work confronted an age-old problem, the relationship between the mind and the body, by suggesting, “that the non-physical mind could influence the physical body” (Hergenhahn, 1992, p.98). Throughout the centuries, almost every conceivable position that can be taken has been taken in trying to explain the nature of the relationship between the mind and the body (Hergenhahn, 1992), and more particularly, how to resolve the impasse “stemming from the difficulty in explaining how the non-physical mind interacts with the physical world. This physical world necessarily includes our brain and body” (Doublet, 2000 p.48). At present the mind-body problem may not be resolvable (Valentine, 1982). Perhaps we can do no better in this debate than to adopt Descartes’ common-sense approach to the mind-body relationship: “Everyone, he said, has both bodily and conscious experiences and senses the fact that the two influence one another” (Hergenhahn, 1992, p.99).

### **The Eighteenth Century and Beyond**

The eighteenth century, as Doublet points out, saw a return of what he calls the “passions,” e.g. nerves, vapors, hysteria, as explanations for different illnesses and disease. The use of such conditions as tools for explaining different complaints led writers of the time to conclude that “at least a third of all diseases were of nervous origin” (Doublet, 2000, p.49). Scientists and social commentators of the time also continued to point to the quickening pace of life and the impact this was having on health and well-being, to the extent that by the time the nineteenth century arrived, there was clearly a fear that “the human nervous system was ill-adapted to cope with the increased complexity of modern life” (see Wozniak, 1992, p.4). Wozniak further illustrates the nature of this fear by referring to the work of George Beard

(1839–83), a noted American physician specializing in diseases of the nervous system. Beard's work led him to suggest that pressing demands of nineteenth-century life may lead to a circuit overload of the nervous system. Beard described this state as "neurasthenia" – "a weakness of the nervous system" (Rosenberg, 1962, p.240); "nervous exhaustion" characterized by symptoms such as morbid anxiety, unaccountable fatigue, and irrational fears caused by the inability of the nervous system to meet the demands of daily life. The idea that the "stresses and strains of modern life could cause mental disease was 'an almost ritualistic belief' of the nineteenth century" (Abbott, 2001, p.37), and the diagnosis of nervous exhaustion became "part of the office furniture of most physicians" (Rosenberg, 1962, p.258). During its heyday "which lasted from the 1870s to the turn of the century, the diagnosis of neurasthenia provided patients with a scientifically legitimate explanation of their inability to perform their expected roles" (Martensen, 1994, p.1243).

Beard's work was important for two reasons. The first because he helped to "remove the social disapproval attached to such ailments" and "helped make their diagnosis a medical and not a moral one" (Rosenberg, 1962, p.253). Secondly, and more importantly, his work deserves serious consideration because it was an "attempt to shed light upon the role played by society in the production of mental illness" (Rosenberg, 1962, p.253), and it is this aspect that makes his work relevant today. To Beard, nervous exhaustion was an immediate consequence of "a particular kind of social organization; it was as peculiar a product of the nineteenth century as the telegraph" (Rosenberg, 1962, p.253). Even though by the early twentieth century, neurasthenia had "lost most of its validity as a diagnosis" (Martensen, 1994, p.1243), it can be viewed as "one of the growing pains of a new and better society" (Rosenberg, 1962, p.257).

It was also during this time (1859) that Claude Bernard, a noted French physician, first introduced the idea that the internal environment of living organisms must remain fairly constant in response to changes in the external environment (Cassidy, 1999; Monat and Lazarus, 1991; Selye, 1983). For Bernard, the most striking feature of living organisms was their harmonious arrangements. The idea of harmony and consistency within living organisms gave rise to his notion of the internal environment or the *milieu intérieur*. Bernard pointed out that that it is the

fixity of the *milieu intérieur* that is the condition of free and independent life (see Selye, 1983). The fixity of the *milieu intérieur* refers to the idea that nothing within the body must be allowed to deviate far from what is normal; if something does, then the individual will become ill or may even die (see Selye, 1973). Survival, according to Bernard is determined by consistent maintenance of the internal environment via “continual compensatory reactions” (Doublet, 2000, p.55) in response to changes in the external environment. The significance of Bernard’s work lies in the necessary receptive atmosphere it created for the eventual development of the contemporary notion of stress. His more lasting legacy was the motivation his work gave to later researchers to take forward his pioneering studies and explore the nature of those adaptive changes by which the steady state is maintained (Selye, 1991).

Bernard’s work reflected the mechanistic view of biology (Mason, 1972). According to this view, there was nothing mysterious about life simply because “the behavior of all organisms, including humans, can be explained in the same way that the behavior of any machine can be explained – that is in terms of its parts and the laws governing those parts” (Hergenhahn, 1992, p.17). Bernard’s work may have been a response to those who adopted a “vitalist” point of view (Cassidy, 1999). The vitalists “maintained that life could not be explained by the interactions of physical and chemical processes alone” (Hergenhahn, 1992, p.213). To the vitalists, life was something more. Humans possessed some “vital force” or “life force,” and so could never be understood simply in terms of mechanical laws. About the time that Bernard’s work was being debated, Charles Darwin’s writings were about to deromanticize nature and give to the world a mechanistic view of evolution (see Leahey, 1992), providing another impetus to the mechanistic view of biology and science and the mechanization of human nature. So, by the end of the nineteenth century, it is probably useful to note that one conflict underlies all others: the conflict between the beliefs of scientific mechanism which reduce the individual “to a collection of chemicals laboring in a vast industrial machine” (Leahey, 1992, p.171) on the one hand, and the “spiritual reality” of the individual on the other.

Bernard’s work, like other scientists of his time, adopted a “reductionist perspective” (Cassidy, 1999). Reductionism is

where the ideas of one field (in this case human behavior) are explained in terms of the terminology and laws of another field (in this case biology-physiology). In this sense, the phenomena of one field are "being reduced" to the principles of another (see Hergenhahn, 1992; Leahey, 1992). Adopting a reductionist approach at this time is not surprising, since the prevailing disease model of illness "held that illness results from external agents that disrupt the body's normal function" (Aldwin, 2000, p.2) and that health could only be regained by restoring the body to normal functioning. Viewed in this way, the prevailing assumptions about causality would naturally lead researchers to the physiological constitution of the body. Much had and has been learned from this approach. The need to explain disease through an "exact science" therefore dominated, and the idea that the mind, mental processes, or some "vital force" animated physiological functioning ran counter to the accepted mechanistic views and fell "largely on deaf ears" (Wittkower, 1977, p.4). Against this ideal, that only the objective mechanistic methods of science could yield knowledge, the views of the vitalists could not prevail but neither were they "conquered" (Leahey, 1992, p.172). The end of the nineteenth century was to see the emergence of the three founding forms (consciousness, unconscious, and adaptation) of psychology: "All the concepts for each were in place, awaiting only the creative minds and forceful personalities needed to weld them into coherent psychological programs" (Leahey, 1992, p.172).

### **Summary: Themes from the Eighteenth and Nineteenth Centuries**

As the nineteenth century drew to a close, a number of threads – some centuries old – were beginning to form into patterns that would provide the underlay for the rich tapestry of developments in the twentieth century. A number of these are worth emphasizing again. Perhaps the most significant is that over the centuries various nonphysical "conditions" have been put forward to explain illness and disease which "all seem to have attempted to explain some aspect of the relationship that people have with their environment" (Doublet, 2000, p.78). While at times the significance of these "conditions" has been sidelined,

as have the methods to investigate them by the power of the scientific paradigm, they nevertheless have resulted in a discourse that bears a startling resemblance to the familiar discourse of the twentieth century. Three of these themes – the idea of “wear and tear,” the concept of the “steady state,” and the impact of the “pace of life” are as robustly discussed today in relation to the nature of “stress,” as they had been in the preceding centuries. Whether these themes are anymore powerful in the context of twentieth-century discoveries is yet to be explored.

Two other themes appeared to hint at what was yet to come. The first theme concerns the dominance of the “scientific” approach and the belief that “because it was non-physical, the ‘life force’ was forever beyond the scope of scientific analysis” (Hergenhahn, 1992, p.212). Anyone suspected of being a vitalist was therefore regarded as “unscientific” (Hergenhahn, 1992). So, as the twentieth century drew near, the pursuit of knowledge that searches for general laws of functioning (nomothetic), was regarded as the only one capable of providing a “scientific” approach, leaving the idiographic mode (“that entails the pursuit of personalized qualities and individual uniqueness”) unable to demonstrate its rich explanatory power (Blundell, 1975, p.17). The irony is that a scientific movement which owes so much to Darwin neglected the “Darwinian emphasis on subtle variations between individuals” (Blundell, 1975, p.18). Finally, there is the second theme or question of whether the different “conditions” or “labels” used to explain illness served a social purpose? That purpose was, as Pollock suggests, “to reduce the arbitrariness of suffering” (1988, p.390), and to provide a legitimate explanation for why individuals were unable to perform their roles or deal with the pace of life. Neurasthenia, for example, “helped make sense of symptoms that otherwise would have been found reprehensible, such as an inability to function in the home or office” (Martensen, 1994, p.1243). If neurasthenia was one of those wonderful nineteenth-century diagnostic entities “that promised something for almost everyone involved” (Martensen, 1994, p.1243), was this just a taste, a hint, of things to come?